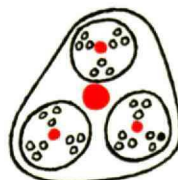
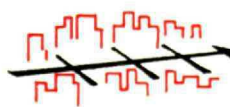
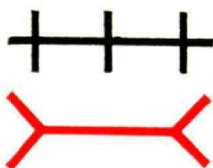
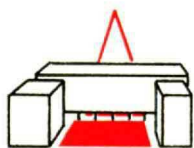
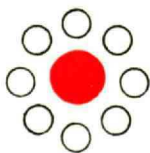
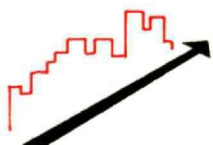
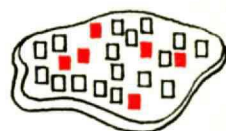
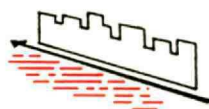
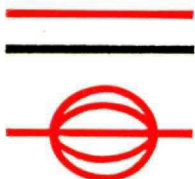
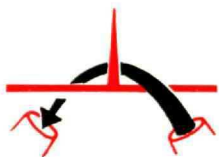
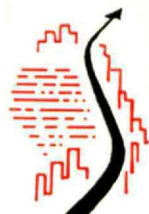
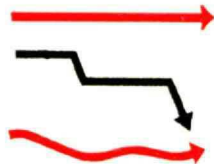
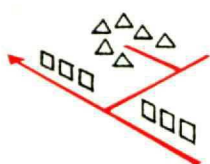


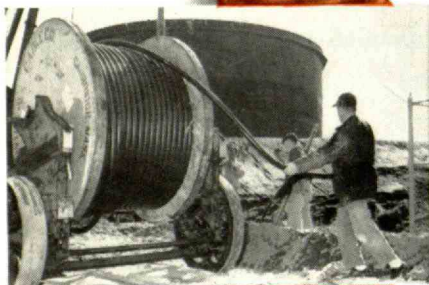
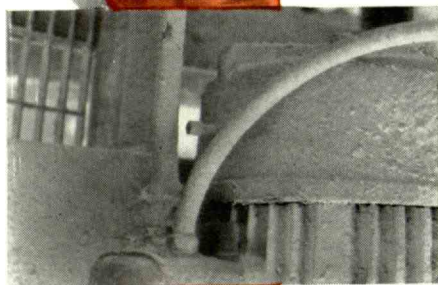
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Feedback

The Origin of INCAP

FROM ROBERT S. HARRIS, '28:

On page 21 of the November, 1960, number of Technology Review it is stated that I "participated in the meeting of Central Americans which led to the establishment of INCAP (the Institute of Nutrition of Central America and Panama)." M.I.T. played a much greater role in the founding of INCAP than this brief statement implies. I refer you to *Bol. Ofic. San Panamericana*, p. 902-11, 1948.

The concept of INCAP developed during 1943-1944 while I was assisting in setting up the National Institute of Nutrition of Mexico. When Dr. Bianchi, then Minister of Health of Guatemala, invited me to assist in a similar development in his country, I pointed out that Guatemala is relatively small, that the other five countries in the area have similar food and nutrition problems, that it would be more efficient and effective if they could join together and support an international institute, and that this would have more appeal to the foundation which was supporting our work. Dr. Bianchi asked me to prepare plans for this new institute, and the W. K. Kellogg Foundation indicated a definite interest in the idea.

In February, 1946, representatives of the six countries met in Guatemala City under the auspices of the Pan American Sanitary Bureau (PASB). We presented our plan for the organization of INCAP, its financial support by member countries, the training of technical personnel, the office, library and laboratory facilities required, the equipment and chemicals needed, the types of scientific and clinical programs in food and nutrition that would be developed, the potential source of external funds for fellowships and equipment, the selection of a U.S. scientific director, the organization of an executive council to administer the institute, and for a scientific advisory committee.

(Concluded on page 10)



DONALD H. SHAW, '60, pictured here with Mrs. Shaw, is now attached to the Ministry of Finance in Dar es Salaam, Tanganyika, Africa. This and other posts in which M.I.T. men now are serving were found for them by Carroll L. Wilson, '32, who discusses Africa's problems as though they were those of a business firm in the article on page 29. Other recent graduates now in Africa are pictured on page 28.

EDITOR: Volta Torrey; BUSINESS MANAGER: R. T. Jope, '28; CIRCULATION MANAGER: D. P. Severance, '38; EDITORIAL ASSOCIATES: J. J. Rowlands, Francis E. Wylie, John I. Mattill; EDITORIAL STAFF: Ruth King, Muriel R. Roberts, Norma G. Humphries; BUSINESS STAFF: Madeline R. McCormick, Marianne G. Hagerty; PUBLISHER: H. E. Lobdell, '17.

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Marginal drawings in Kevin Lynch's new book, *The Image of the City*, constitute this month's cover. Photos from the book illustrate an article by its author on Page 19.

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J. J. Rowlands reviews the history of the electrostatic machines.

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Professor Philip Franklin reviews two new "Tutortexts," others review two new books about computers, and David S. Greenlaw, '57, reports on *Postwar Economic Trends in the United States*, edited by Professor Emeritus Ralph E. Freeman.

Individuals Noteworthy

New Posts

NAMED in the news recently were the Alumni whose elections, promotions, and appointments are reported below:

Bernard L. Landers, '15, as a Trustee, Beth Israel Hospital, Boston, Mass. . . . *Raymond H. Blanchard*, '17, re-elected President, Associated Industries of Massachusetts . . . *John R. Coffin*, '17, as President, Jackson & Moreland, Inc.;

John J. Healy, Jr., '21, as President, American Institute of Chemical Engineers . . . *Clinton B. F. Brill*, '22, and *Kenneth A. Roe*, '41, respectively, as President, and as Vice-president, Brill Engineering Corporation, New York City;

Donald G. Vaughan, '25, as Assistant Vice-president, Aetna Casualty and Surety Company and Standard Fire Insurance Company, Hartford, Conn. . . . *Joseph F. Clary*, '29, as Vice-president, Sales, Railway Division, The Budd Company, Chicago, Ill.;

Frederick E. Mader, '32, as Assistant Divisional Manager, New England Fire Insurance Rating Association, Worcester, Mass. . . . *Samuel A. Groves*, '34, as a Director, First National Bank of Boston . . . *John R. Newell*, '34, as President, Society of Naval Architects and Marine Engineers;

Harold E. Thayer, '34, as President, Mallinckrodt Chemical Works, St. Louis, Mo. . . . *Benjamin F. Schlimme, Jr.*, '35, and *Charles J. Harrington*, '38, respectively, as Planning Manager, Industrial and Biochemicals Department, and as Assistant General Manager, Elastomer Chemicals Department, E. I. du Pont de Nemours & Company;

Robert V. D. Campbell, '38, and *Charles L. Register*, '50, respectively, as Director, Research, and as General Manager of the Laboratories, Burroughs Corporation . . . *Robert B. Gordon*, '39, as Manager, Technical Operations, Atomic International Division, North

American Aviation, Inc., Canoga Park, Calif.;

George J. Laurent, '39, as Executive Vice-president, General Atronics Corporation, Bala-Cynwyd, Pa. . . . *John W. Lovely*, '39, as Service Manager, Bryant Chucking Grinder Company, Springfield, Vt. . . . *Paul N. Stanton*, '39, as Vice-president, Marketing, Pratt & Whitney Company;

Stanley E. Webber, '41, and *William W. Smith*, '49, respectively, as Manager, Engineering, Traveling-Wave Tube Product Section, Palo Alto, Calif., and as Manager, Marketing, Plainville, Conn., General Electric Company . . . *Paul L. Hotte*, '42, as President, Mallory Metallurgical Division. P. R. Mallory and Company, New Bedford, Mass.;

Robert W. Beatty, '43, as Chief, Microwave Circuit Standards Section, National Bureau of Standards, Boulder, Colo. . . . *Charles A. Hathaway*, '43, as Vice-president,

Torrington Manufacturing Company, Torrington, Conn. . . . *William S. Ederly*, '49, as Treasurer, Godfrey L. Cabot, Inc., Boston, Mass.;

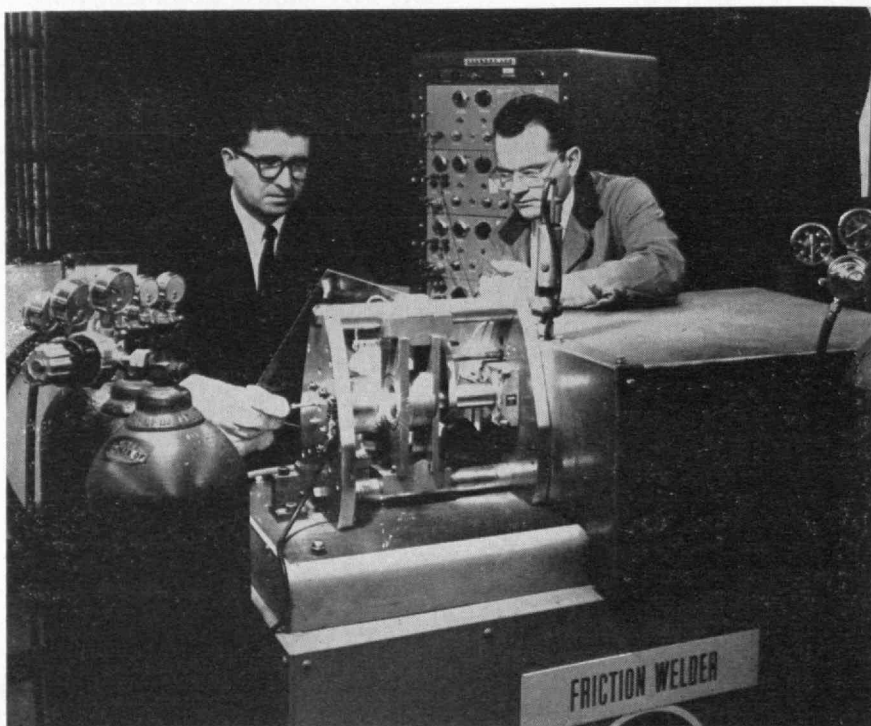
James A. Daley, '50, as Associate Director, Electronics Research, Prudential Insurance Company, Boston, Mass. . . . *Harry E. Gravelin, Jr.*, '50, as Operations Manager, Hamilton Standard Division, United Aircraft Corporation;

Irvine F. Williamson, '50, as Plant Superintendent, Norton Company, Santa Clara, Calif. . . . *Forest C. Monkman, Jr.*, '51, as Vice-president, Engineering and Research, Walworth Company, Boston, Mass.

Weisskopf to CERN

AN M.I.T. Professor of Physics, Victor F. Weisskopf, has been appointed a scientific director of the European Organization for Nuclear Research (CERN) even though the United States is not one of its 13 members. Professor Weisskopf was born in Vienna and educated at the University of Göttingen. He came to the United States in 1937 and has been an American citizen since 1943, when he joined the Manhattan Project.

(Continued on page 8)



STUDIES OF FRICTION WELDING in American Machine & Foundry Company's Central Research Laboratory at Stamford, Conn., are reported to have resulted in a better understanding of the process. Pictured here during the welding of high carbon steel are M. B. Hollander, '53 (left), and F. Camps-Campins.

ELECTRONIC SYSTEM ENGINEERING

The New Field for Scientific Generalists

Present day decisions at the highest level of military command require a range and precision of communication and information processing beyond that conceivable in the past. Probably the greatest single new influence on the requirements for the decision-making process is the sharp reduction in reaction time which results from the introduction of the ballistic missile.

To cope with this problem, science and technology must provide the Military Commander with the means to exercise his command effectively. It must give him the facilities by which he can evaluate and extend his control over his weapons. Without such support to the Commander and his command organization, effective peacetime deterrence, wartime defense and retaliation are impossible.

Optimization of the command and control function can be facilitated by electronic systems which collect, transmit, process and display the data required for the decision-making process. These systems involve, to an unusual degree, interrelationships among technical factors, operational factors and the command structure in which the systems are to function. Further, these system requirements cannot be considered independently of the technical capabilities of men and machines.

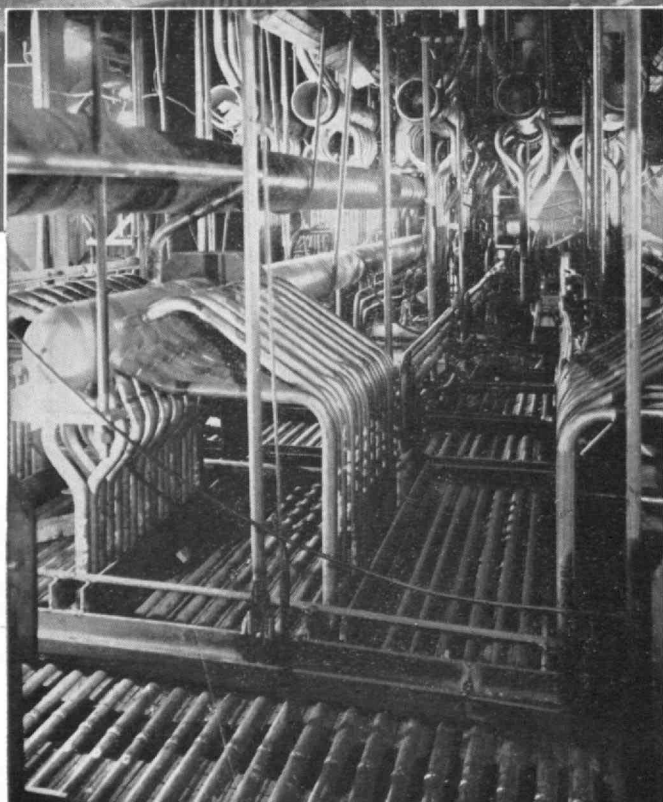
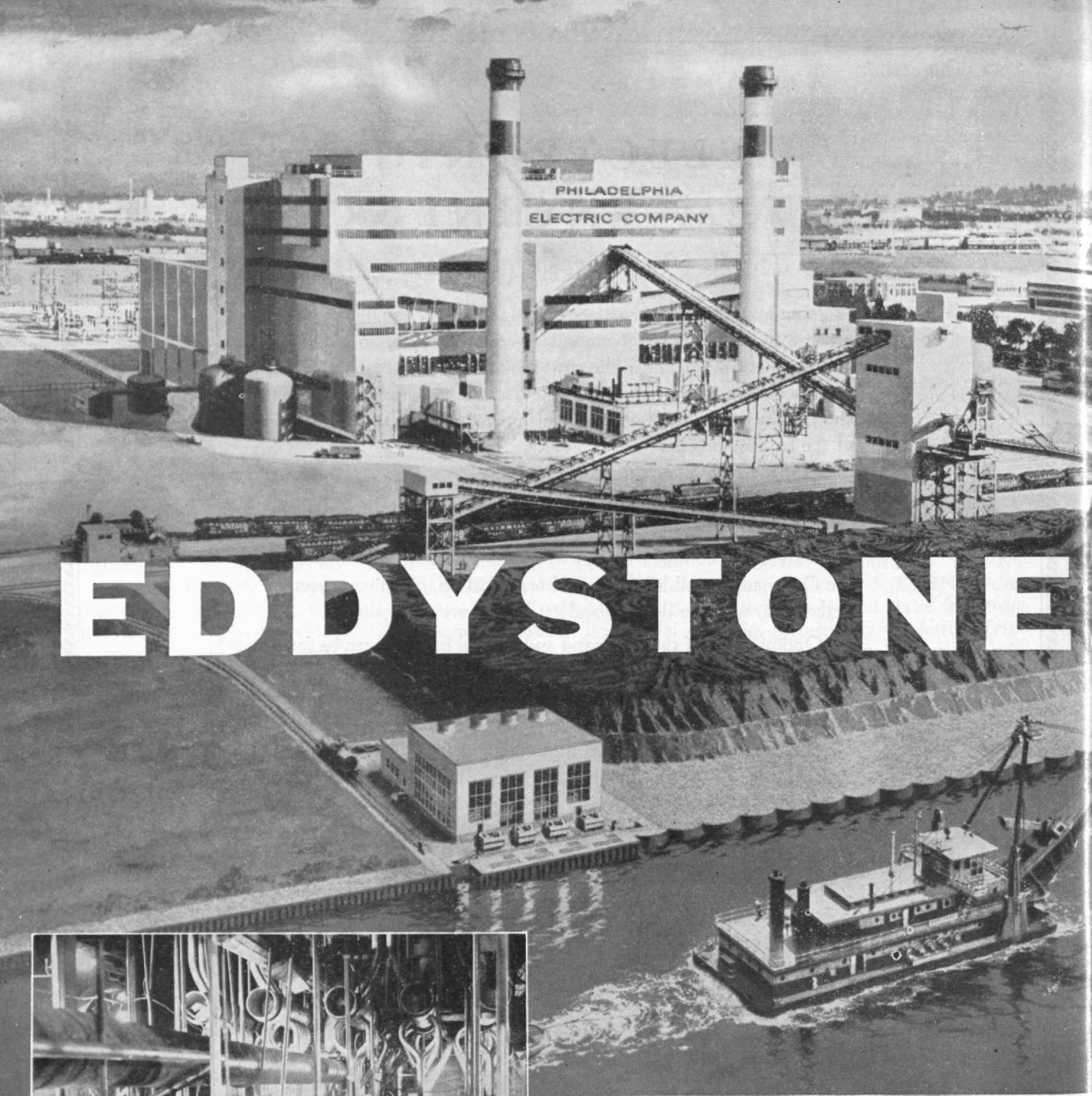
The MITRE Corporation is a nonprofit organization formed in 1958 under the sponsorship of the Massachusetts Institute of Technology. It provides technical support to the United States Air Force's Command and Control Development Division and the Federal Aviation Agency. *Its nucleus* is composed of the engineers and scientists who designed and developed SAGE, the world's largest real-time control system—and SATIN, a modern Air Traffic Control System. *Its task* is to design, develop and evaluate large-scale, computer-based command and control systems.

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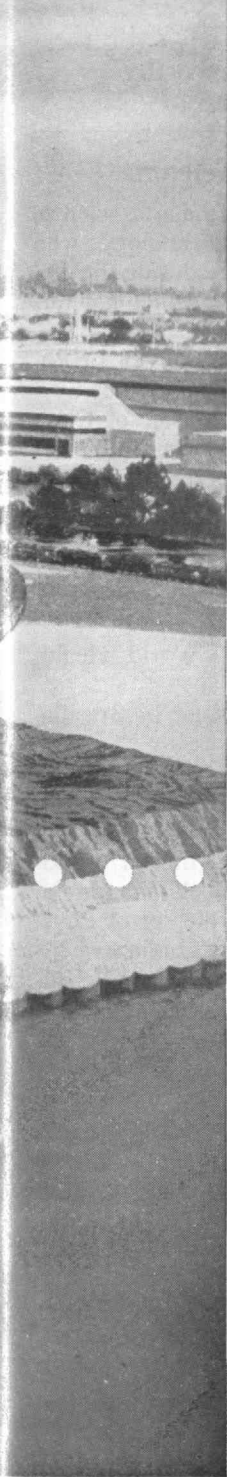
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(Above) The Eddystone station of Philadelphia Electric Company. It contains two 325,000-kilowatt turbine-generators, both utilizing "super-critical" pressure steam supplied by Combustion Engineering boilers of the C-E Sulzer Monotube design.

(Left) Perched atop the furnace roof at Eddystone, this complex maze of headers and tubes is part of the arterial system through which water and steam flow. Each furnace (there are two per boiler) stands as high as a 14-story building. The boiler contains approximately 170 miles of tubing and, when running at full capacity, consumes about 100 tons of coal an hour.



At the Eddystone station of Philadelphia Electric Company, steam, harnessed and squeezed to the record "supercritical" pressure of 5,000 pounds per square inch, is used to spin a giant 325,000-kilowatt turbine-generator—a machine capable of supplying the residential electric needs of a city of about two and one half million people. The steam is supplied by a single Combustion Engineering boiler—a C-E Sulzer Monotube Steam Generator—which, in addition to being the world's highest pressure boiler, is designed to produce steam at a record-breaking 1200°F—a temperature high enough to melt lead, zinc or magnesium. The temperature of this steam so greatly exceeds the capabilities of normal metals that specially compounded stainless steels were developed to contain it. Even they glow a cherry red. This unit was placed in commercial service in February, 1960.

The world's most advanced power station

A second 325,000-kilowatt unit, also operating in the "supercritical" pressure range, was placed in service at Eddystone in October, 1960. It, too, is served by a C-E Sulzer Monotube Steam Generator.

The pressure-temperature conditions of Eddystone No. 1 are equaled nowhere in the world and represent the world's most efficient power plant cycle. The adoption of these new highs by Philadelphia Electric Company exemplifies the continuing efforts being made by the utility industry to assure that electric energy remains the country's best buy.

Thus, as the decade of the sixties begins its second year, power plant progress continues apace. It is gratifying to note that, as in the decade past, boilers designed and built by Combustion continue to account for about 40 per cent of the new capacity being added by America's electric utility industry.

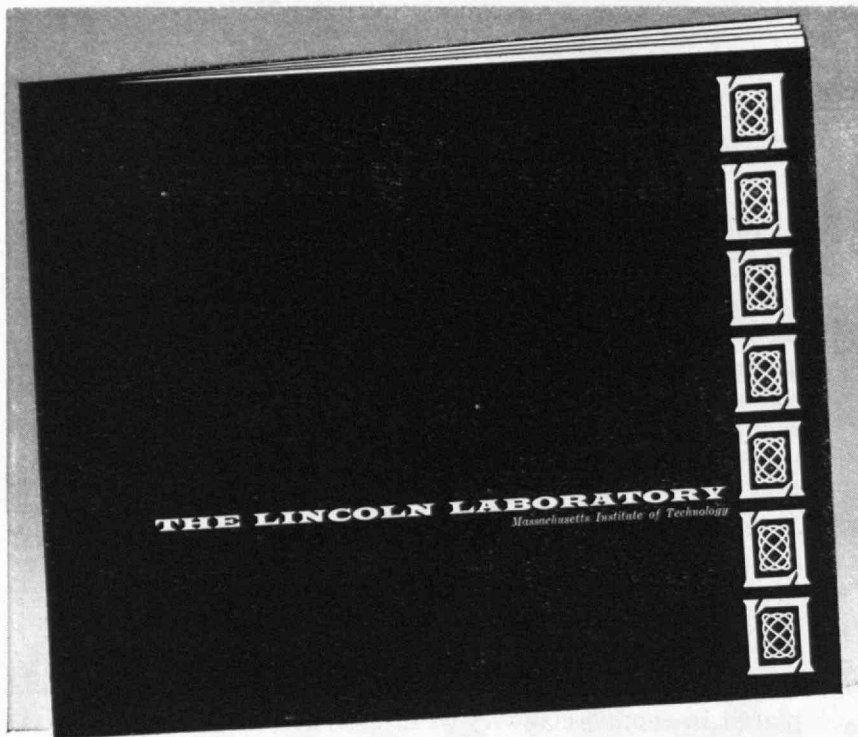
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Individuals Noteworthy

(Continued from page 4)

Centennial Participants

WORLD LEADERS in the arts, science, engineering, and technology who will be in Cambridge during the observance of M.I.T.'s centennial this spring will include:

Raymond Aron, Professor of Political Science, Sorbonne, Paris.

Sir Eric Ashby, Master of Clare College, Cambridge, England.

Lloyd V. Berkner, Brookhaven National Laboratory Director, New York.

H.B.G. Casimir, Director of Research, Philips, Eindhoven, Netherlands.

Brock Chisholm, World Health Organization, Canada.

Lucio Costa, planner of Brasilia, Brazil.

Sir Willis Jackson, Director of the Association of Electric Industries, Manchester, England.

Humayun Kabir, Minister of Education and Cultural Affairs, India.

D. S. Kothari, Professor of Physics, Delhi University, India.

W. Arthur Lewis, Principal, University College of West Indies, Jamaica, B.W.I.

Robert S. Morison, The Rockefeller Foundation, New York.

Eni Njoku, Professor of Botany, University College, Ibadan, Nigeria.

Pier Luigi Nervi, architectural engineer, Italy.

Sven Markelius, architect and city planner, Sweden.

I. I. Rabi, Professor of Physics, Columbia University, New York.

Adam Schaff, Professor of Linguistics, University of Warsaw.

To Give Recitals

THE M.I.T. Humanities Department will present Marie-Claire Alain and Lady Susi Jeans in organ recitals in Kresge Auditorium at 8:30 P.M. on March 1 and April 12 respectively.

Lady Susi Jeans is the widow of the British scientist, Sir James Jeans. She is noted both for her performances as an organist and harpsichordist and her work in the field of music history.

Marie-Claire Alain, a recipient of the Grand Prix du Disque, will be making her first visit to this country.

(Concluded on page 46)



Said Gaspard de Coriolis: *"A particle which is subject to no forces in a rotating coordinate system experiences a radial acceleration and a tangential acceleration."*

It was around 1840 that Coriolis discovered what has since become known as the Coriolis Effect. He noticed objects above the earth tend to rotate relative to the earth's rotation . . . to the right in the northern hemisphere, to the left in the southern.

The Coriolis Effect is in force in outer space, too. If a space vehicle is rotated in order to establish artificial gravity, the necessarily short radius of the rotation causes a Coriolis force. This creates orientation problems for a human occupant. To eliminate this difficulty, a scientist at Lockheed Missiles and Space Division conceived the idea of connecting the vehicle to an auxiliary fuel tank by a half-mile-long cable. Thus, if the whole system is then rotated at a reduced speed around its center of mass gravity, the longer radius greatly minimizes the Coriolis force. Right now—on the drawing boards at Lockheed—is an enormously advanced space vehicle system which utilizes this concept, in addition to many others.

Fortunately, natural laws are about the only restrictions which circumscribe scientists and engineers at Lockheed Missiles and Space Division. The climate in Sunnyvale and Palo Alto, on the San Francisco Peninsula, is close to perfection. The creative atmosphere—the opportunity to work on such important projects as the DISCOVERER, MIDAS and SAMOS satellites, the POLARIS FBM, or even more advanced concepts such as the space system cited above—is the dream of the creative engineer.

Why not investigate future possibilities at Lockheed? Write Research and Development Staff, Dept. M-11D, 962 West El Camino Real, Sunnyvale, Calif. U.S. citizenship or existing Department of Defense industrial security clearance required.

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Feedback

(Concluded from page 3)

This plan met with enthusiastic approval by all delegates, Guatemala offered to put up the building, and PASB was asked to be responsible for the organization of INCAP. During 1948-1949 three chemists, three agronomists, one nutritionist, and three physicians attended M.I.T. under fellowships provided by the W. K. Kellogg Foundation. We drew up the plans for the new INCAP building and selected equipment and chemicals for the laboratories, and these were ready in the fall of 1949.

The PASB was indeed fortunate in selecting Dr. Nevin Scrimshaw as the first scientific director of INCAP. The brilliant direction he has given INCAP during its first 12 years is the chief reason for its world-wide reputation. Only those who have worked in scientifically underdeveloped areas can fully realize the full importance of this achievement. For five years I served as a member of the advisory committee and watched this experiment in international scientific collaboration bud and then blossom.

It is fitting therefore that M.I.T. should continue to participate and counsel in the programs of INCAP, for in a very true sense they are related as father and child.

*Department of Nutrition,
Food Science and Technology,
M.I.T., Cambridge*



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Donald W. Douglas, Jr., President of Douglas, discusses valve and fuel flow requirements for space vehicles with Dr. Henry Ponsford, Chief, Structures Section.

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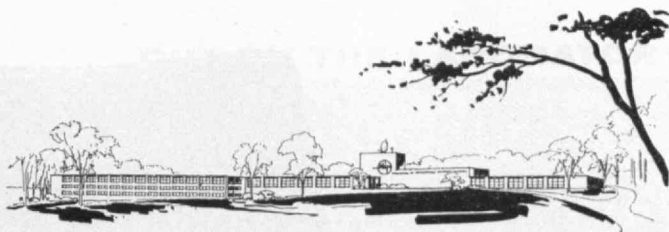
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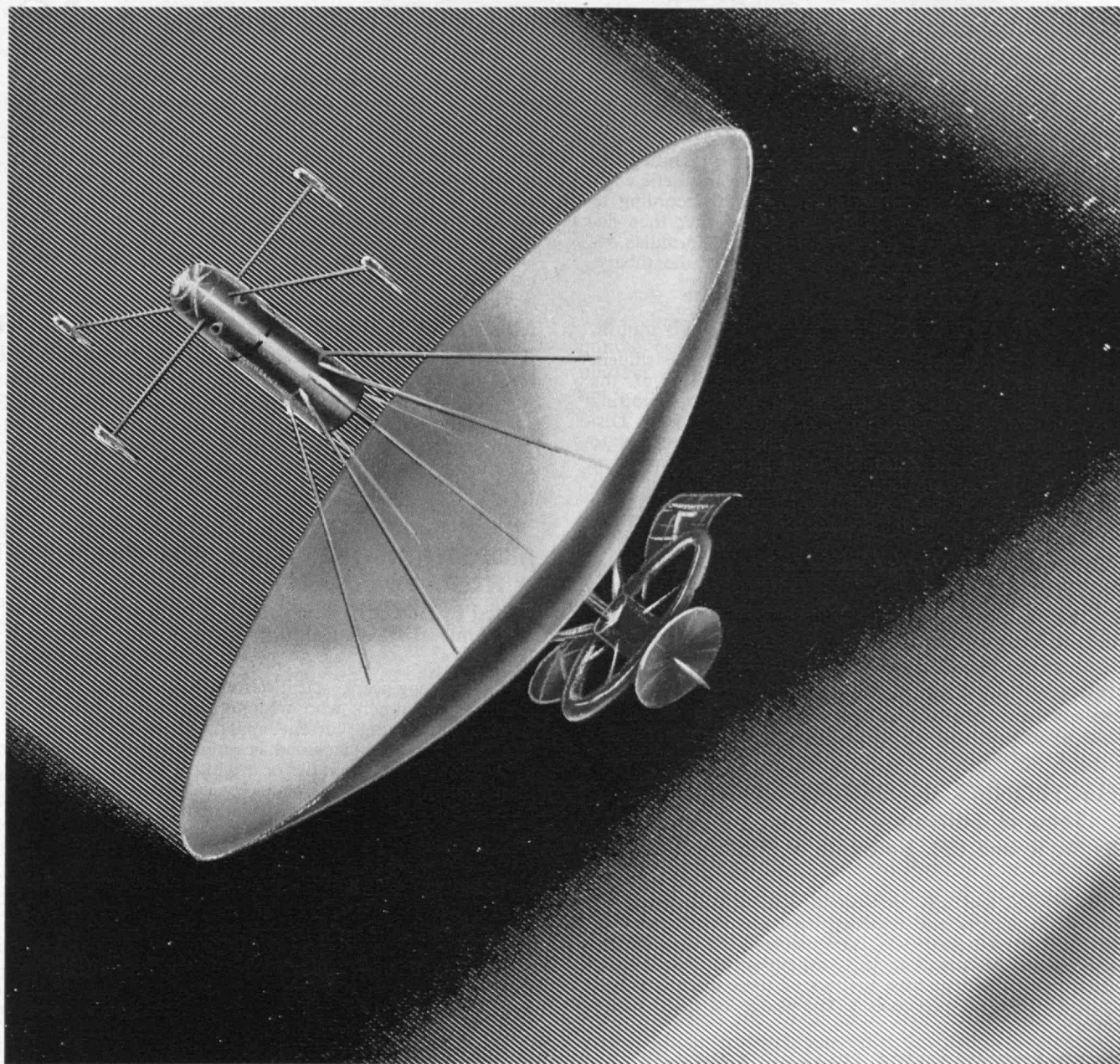
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An undergraduate text designed to provide the student with a theoretical and scientific understanding of the machining of metals. Consideration is given the cutting tool, the workpiece, the chip, and the cutting fluid. Discussions are included of solid-state physics as related to mechanical properties of materials, of the mechanics of the cutting process, lubrication and wear, and indications of how the developments can be utilized for the ultimate aim: increased production.

AN INTRODUCTION TO INFORMATION THEORY

By F. M. Reza, Syracuse University. The McGraw-Hill Electrical and Electronic Engineering Series. Ready in April, 1961.

This book will consist of an introductory treatment of basic concepts in probability theory, followed by an introductory treatment of information theory concepts. Designed for a two-semester course for first year graduate students.

ELECTRONICS IN ENGINEERING.

Second Edition

By W. Ryland Hill, University of Washington. 352 pages, \$8.00.

This revised and updated second edition is designed for non-E. E. majors and intended as a sequential extension of the Loew-Bergseth text. The elements of vacuum and solid state electronic devices, examples of their use in electronic circuits and an analysis of these circuits are included. The text presumes a knowledge of basic circuit theory.

THERMODYNAMICS. Second Edition

By G. N. Lewis and M. Randall (Revised by Kenneth S. Pitzer and Leo Brewer, both of the University of California, Berkeley). McGraw-Hill Series in Advanced Chemistry. Ready in February, 1961.

A revision by two top men in their field of a 1923 classic. The informal and much-admired style of the first edition has been retained and will make the book very appealing to all its readers. Because the last edition of the book was 37 years ago, there is much new material included in the new edition, particularly in the middle and late chapters. These chapters have now been brought up to the present frontiers of thermodynamics. Illustrative materials have been brought up to date. As before, illustrative problems are worked out in considerable detail.

MODERN PHYSICS FOR THE ENGINEER. Second Series

By Louis N. Ridenour; and William A. Nierenberg, University of California, Berkeley. University of California Engineering Extension Series. Ready this month.

This compilation of lectures coordinated by Dr. Nierenberg is the second volume derived from a high successful extension course given at the University of California with distinguished physicists and educators as lecturers. Following the technical organization of the earlier volume, there are three main sections: The Laws of Nature, Man's Physical Environment, and Technology.

MANUFACTURING PROCESSES

By James S. Campbell, University of California, Berkeley. Ready this month.

A sophomore level text covering the principles involved in all important manufacturing materials and processes: heat treatment, casting processes, hot and cold working processes, machinery processes. Emphasis is placed on general principles rather than particular machines. Line drawings and chapter bibliographies.

MODERN MATHEMATICS FOR THE ENGINEER. Volume II

Edited by Edwin F. Beckenbach, University of California. University of California Engineering Extension Series. 480 pages, \$9.50.

A text for engineers, scientists, mathematicians, students, teachers and others who wish to become or remain informed concerning current applicable mathematical developments. Topics included have had recent spectacular applications in mathematics or are likely soon to be applied in physical, sociological or biological sciences—in either case they involve a degree of mathematical subtlety.

PRINCIPLES OF INERTIAL NAVIGATION

By C. J. Savant, University of Southern California; Robert C. Howard, Giannini Controls Corporation; and C. A. Savant, Northrop Corporation. Ready this month.

A senior-graduate text devoted entirely to inertial navigation. This book will be of great interest to people concerned with missile engineering and space technology. Previously classified information is presented with a systematic summation of the unclassified literature in the field. General bibliography included.

COMPLEX VARIABLES AND THE LAPLACE TRANSFORMATION FOR ENGINEERS

By Wilbur R. LePage, Syracuse University. International Series in Pure and Applied Mathematics. 475 pages, \$12.50.

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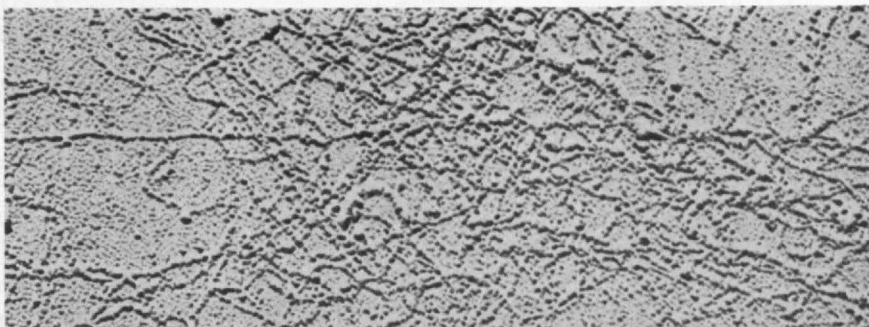
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Trend Of Affairs



For International Service

THE INSTITUTE of International Education has presented an award for international service to M.I.T. Such a citation is given every two years "to dramatize the magnitude of the creative contribution which the colleges and universities of the United States can make to the mutual development of nations."

James R. Killian, Jr., '26, Chairman of the Corporation, accepted this award in M.I.T.'s behalf in San Francisco last month.

"M.I.T., which is celebrating its centennial, is known and respected in every corner of the globe," the citation stated. "Technical 'know-how' is characteristic of American life, but the scholars of M.I.T. have built a university in which scientific study and research to improve the condition of man have reached new heights.

"Technical development is not M.I.T.'s only contribution. Strong programs in the humanities and the social sciences give M.I.T.'s engineers, scientists, architects and administrators the breadth of vision vital to the use of their skills. In this technological institution a distinguished Center for International Studies provides incisive answers to the complex problems of modern social and industrial life.

"M.I.T. not only welcomes scholars from abroad—it encourages its own staff and students to help other nations in planning their new industrialization."

Make-Believe Worlds and Brains

FURTHER DEVELOPMENT in the theory of computers, Professor Claude E. Shannon, '40, suggested at a Hayden Colloquium this fall, may make new approaches possible to problems of epistemology and causality. Professor Shannon's topic was "Causality in Real and Simulated Worlds," and he discussed the history of the causality concept in physical science together with various possible types of causality in mathematical models of universes.

As science has advanced, he pointed out, some experiments that were suggested in the past no longer seem possible to carry out, although the number of technologically feasible experiments has increased. We know now, for example, that an experiment requiring a speed greater than that of light cannot be performed, but improvements in our instruments, machines, and insights have made other experiments that formerly seemed impossible now appear to be technically feasible.

As currently viewed, the human brain has a finite number of inputs from its environment and a finite number of ways of affecting that environment. Though not yet practical, it is conceivable that an artificial brain could be built and placed in an artificial environment. Both this brain and its environment would be super-duper computers, which would feed and be affected by each other. The brain-like computer would have no way of knowing that the environment supplied by the other computer was not real. The artificial environment could be made even more capricious, if one wished, than the real world, and be made to simulate a great range of conceivable environments.

A study of a simulated brain's behavior in various simulated environments, Professor Shannon concluded, would enable us to embed philosophical questions concerning epistemology, causality, and the like in mathematical models. Thus sharper meanings and, in some cases, definite answers are possible for these questions.

Filaments Within Nerves

FOR A SYMPOSIUM on "Unsolved Problems in Biology" during the recent New York meeting of the American Association for the Advancement of Science, Peter F. Davison of M.I.T. reviewed some of the biologists' knowledge of molecular organization within neurons.

These nerve cells which transmit impulses from sensory organs to the brain have long extensions called axons. Much research has been devoted to the membrane phenomena associated with the impulse transmission along the axons, but recently evidence of chemical changes occurring within the nerve cell after stimulation has directed attention to structures within the neuron and its axon. One such structure, a fibrous protein, has been studied in the Institute's Department of Biology. Obtained from huge squid caught off the coast of Chile, this protein is flown to M.I.T.

When shadowed by metal and magnified 25,000 or more times, the filaments shown in the photograph at the top of this page can be seen and studied. Whether these filaments figure directly or indirectly in the excitation of the nerves or whether they participate in metabolic processes is not known. Such fibers, however, are found in all nerve cells and axons and hence they probably have an essential role to play in neuronal function.

The High Building For Earth Sciences

GROUND was broken last month for the building that will house the Center for Earth Sciences at M.I.T. It was made possible by a gift from Cecil H. Green, '23, and Mrs. Green, of Dallas, and is scheduled to be completed in 1962. This will be the first 20-story building in Cambridge. It will be east of the Compton and Dorrance Laboratories, about 200 yards north of Memorial Drive. It was designed by I. M. Pei, '40, and his associates, and is pictured elsewhere in this issue with other examples of their work. (See Page 22.)

This high structure, 120 feet long and 50 feet wide, will be unusual in several respects:

❏ Four corner columns will support it. Stair, elevator, and mechanical shafts will be in the building's ends, leaving all floors free of structural obstructions.

❏ Its floors will be prestressed concrete joists, resting on floor-high Vierendeel trusses, the webs of which will be hollowed out by oval windows. These trusses will transmit their loads to the four corner supports, and the whole will be braced against the wind by the end walls. The ground floor will be completely open except for the entrance lobbies.

❏ The exterior of the building will be cast architectural concrete and the surface will be lightly sand-blasted to expose some of the stone aggregate. Aside from its 325-foot height, its most eye-catching feature will be its oval windows.

The Center for Earth Sciences which this building will accommodate is one of five new major centers for research and graduate study included in the Second Century Program. Its facilities are now mainly in Buildings 20 and 24. The former is the temporary wooden structure which housed the wartime Radiation Laboratory, and the latter is a seven-story building that is now overcrowded.

The **first floor** above ground level in the new building will be occupied by an auditorium seating 250 persons and intended for general use. On the **second floor**, the final one accessible by a main stairway, visitors will find three large classrooms, three seminar rooms, and a student lounge. Proceeding upward to the other floors one will see:

Third—Teaching laboratories for the Department of Geology and Geophysics and a storage area for rock samples and ores.

Fourth—Research and teaching laboratories in paleontology and structural and historical geology.

Fifth—A laboratory for high-pressure experimentation and study of phase changes in minerals, the Geology Department's machine shop, and faculty offices.

Sixth—Four more faculty offices, and facilities for research and teaching of geophysics.

Seventh—The crystallography laboratory directed by Institute Professor Martin J. Buerger, '24; the headquarters of the School for Advanced Study which he heads; and additional research facilities, a classroom, and a seminar room.

Eighth—The Cabot Spectrographic Laboratory; laboratories for sedimentology and related subjects; three more faculty offices and one seminar room.

Ninth—The mass spectroscopy room, a room for the separation of minerals, a chemistry laboratory, and quarters for professors and graduate students.

Tenth—Headquarters of the Department of Geology and Geophysics, a faculty lounge, a large classroom, and a good-sized seminar room.

Eleventh—The Lindgren Library.

Twelfth—A teaching laboratory for sedimentology, stratigraphy and petroleum geology, another classroom and seminar room, and offices for teachers.

Thirteenth—Offices, graduate student rooms and facilities for the study of geochemistry, including radiochemistry.

Fourteenth—Facilities for research in chemical oceanography and meteorology.

Fifteenth—Laboratories, faculty offices, and graduate student rooms for researchers in meteorology.

Sixteenth—Headquarters of the Department of Meteorology, offices, seminar rooms, and laboratories.

Seventeenth—The synoptic meteorology room, plotting room, two laboratories, offices, and a seminar room.

Eighteenth—A meteorological instrument laboratory, and more offices and rooms for classes.

Nineteenth—Weather radar console room and staff laboratories, plus a machine shop.

Twentieth—This, in addition to air-conditioning gear and other mechanical requirements, will contain a radar transmitter, and the roof will be a complete meteorological laboratory.

From this high point, the meteorologists will have an unrestricted horizon for their radars, balloon-sounding equipment, and other atmospheric probes. They will be above much of the smoke and dust of the city and have one of the finest views obtainable of Cambridge and Boston.

Three weather radars, each at a different level on the roof, will be able to "see" many miles without interference from surrounding buildings, watch the approach of rainstorms, and help keep M.I.T. in the forefront of the "new, vital and exciting era" which Professor Henry G. Houghton, '27, forecasts.

All told, about 150 carefully selected graduate students and 50 undergraduates will work in the new building under the guidance of 50 professors. Distinguished foreign earth scientists will join them from time to time. "Eager students," Professor Robert R. Shrock promises, "will have the opportunity to participate in great advances—and they will learn by doing, the dominant attitude in all M.I.T. activities."

The new center, President Julius A. Stratton, '23, predicted as ground was broken for it, "should stimulate a much closer integration of our efforts in both teaching and research and give our whole program in the earth sciences a drive it could not otherwise achieve."

"In thinking of the new center," said Mr. Green, "I am obsessed with the idea that it is to serve as a forum, or a meeting place, for those mathematicians, physicists, chemists, biologists, and engineers who happen to have an interest in the problems of the earth sciences. . . . With this integration of interests, we are bound to have a center here that will attain great international as well as national stature."

A European M.I.T. Is Urged

A STUDY of ways whereby science in the Western world might be strengthened has resulted in a recommendation that the nations of western Europe consider the establishment of an International Institute comparable to M.I.T. "in size, scope, and quality."

This study was suggested at meetings of the Science Committee of the North Atlantic Treaty Organization, and was made by a distinguished committee headed by M. Louis Armand, former President of French Railways and former President of EURATOM. The Ford Foundation provided financial help, and the Fondation Universitaire of Brussels administered the funds.

As envisioned by the committee, the proposed International Institute would be a center for research in oceanography, meteorology, materials, space, and other areas of science. It would concentrate on work at graduate level, grant its own degrees, and welcome students from less developed countries.

"Although it is doubtful," the committee wrote, "whether any single European country has the resources in man power and money to proceed on its own, it is certain that western Europe as a whole could easily muster the required talent and equipment."

The "Russian" Dormitory

TEN M.I.T. STUDENTS living on the third floor of Senior House now speak only Russian there. Guided by David Pearlmutter, instructor in the Department of Modern Languages, they do this voluntarily—and recently led some visitors from Russia to think that the Institute had "a Russian dormitory." They have fooled others, too, by conversing in Russian during meals.



In these students' rooms, everyone speaks in Russian.



Station Manager "Buck" Rogers, Jr., '61, at a WTBS mike.

WTBS-FM Due in April

THE M.I.T. STUDENTS' radio station, WTBS, is preparing to become WTBS-FM, 88.1 megacycles, and thus to enlarge its audience to include all living groups, nearby colleges, and other listeners within a few miles of the Institute. Permission to construct and test equipment required for the step has been received from the Federal Communications Commission. The first FM broadcast, it is now hoped, will be made during Centennial Week.

Human Potentialities

IN THE LAST of six lectures entitled "What a Piece of Work Is a Man," at M.I.T. last fall, Aldous Huxley pleaded for a systematic study of means of realizing more of man's potentialities. Physiologically, he observed, we have not changed much in the last 20,000 years, but our achievements and opportunities have become greater. It is likely, he continued, that potentialities for rationality, affection, and creativity still lie latent in us, and might be brought out in a variety of ways. But, he concluded, since "truth lies at the bottom of the well, and the well is very often muddy," much more study is needed of means of developing human potentialities.

All of Mr. Huxley's lectures in Kresge Auditorium drew capacity crowds. They were presented by the Department of Humanities, as part of the Institute's Centennial Program, and Mr. Huxley will return to Cambridge to participate in the exercises in April.

An Institute Historian

JOHN S. MASLANKA, '61, of New Bedford, Mass., helped prepare the Boston Herald's 180-page Sunday supplement last fall about M.I.T., and now has chosen as the subject for his senior thesis: "William Barton Rogers' Conception of an Institute of Technology."

President Rogers, he says, raised engineering from a craft learned by serving an apprenticeship to a profession taught by the scientific method, and also started the "tough educational policy" at M.I.T. with his grade system: *G* for good, *S* for satisfactory, *P* for poor, and *N* for "next to nothing."

Mr. Maslanka's digging is helping many of those responsible for centennial affairs.

The Waste-Makers' Problems

AT THE National Conference on Water Pollution last month in Washington, Professor Rolf Eliassen, '32, of M.I.T.'s Department of Civil and Sanitary Engineering pleaded for more study of the effects of new and exotic chemical contaminants, techniques of recovering waste materials, and means of preventing various kinds of stream pollution.

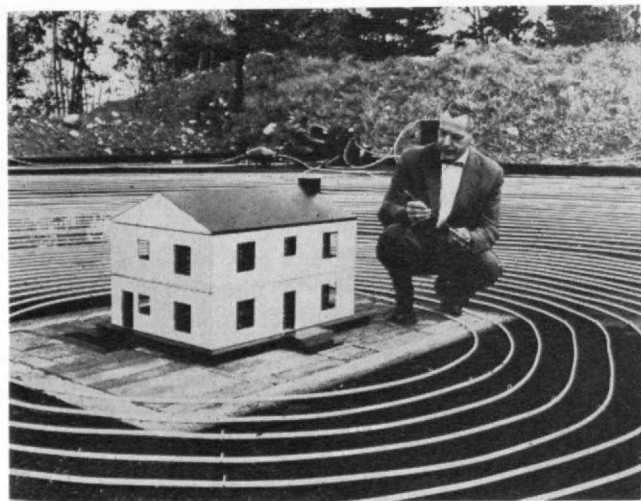
Some of the new synthetic chemicals pass unchanged through water-treatment plants and are not oxidized by the natural self-purification processes of streams, he warned. "To leave no stones unturned," he said, "this conference must ask the chemical industry: What are the chances of changing the structure of some of the widely used synthetic chemicals which contribute to water contamination? It should not be difficult for the chemical industry to develop a different series of compounds and produce some which could be broken down by bacteria, and still be relatively inexpensive."

His recommendations also included a call for research regarding the incidence of viruses in municipal waste waters. "Water filtration plants," he pointed out, "are not capable of removing viruses. Very little is known about the viral contamination of ground waters or streams, or of the fate of viruses in the water environment. Much research is needed in this field, perhaps taking advantage of modern radioactive tracer techniques to tag viruses and follow their behavior."

Such work is now being undertaken in the Sedgwick Laboratories of Sanitary Science at M.I.T.

Fall-Out Simulation

A NEW MEANS of assigning "shelter factors" to buildings of all kinds for civil defense was revealed this fall by Eric T. Clarke, '44. By pumping a pellet of radioactive cobalt through a hose laid out in concentric circles around a model of a building, he can simulate the effects of fall-out from nuclear explosions and determine how much less persons in various parts of the building would be affected than they would be if they remained outdoors. Dr. Clarke is vice-president for Research and Development of Technical Operations, Inc., which devised this method of evaluating shelters for the Office of Civil and Defense Mobilization.



Eric T. Clarke, '44, with a pellet used to study fall-out.

Apparatus Aloft

THREE BIG BALLOONS carried apparatus to altitudes of more than 100,000 feet last year for the Cosmic Ray Group of the M.I.T. Laboratory for Nuclear Science. The third flight was made in October, from near Bruning, Neb., to Port Clinton, Ohio, and took about 15 hours. Medford Webster, a guest of the laboratory, now is analyzing the data recorded on photographic film during this flight, as part of the cosmic gamma-ray research which the Atomic Energy Commission, the Navy, and the Air Force sponsor jointly.

"The experiment," Dr. Webster told reporters when the 3,800,000-cubic-foot sphere rose with a 1,000-pound gondola full of apparatus beneath it, "will help us learn more about how the sun works. From such space explorations, we can better determine what reaches the earth from outer space."

Progress With Magnetism

A NEW metallic compound with unusual magnetic characteristics—described at a Conference on Magnetism in New York in November—has resulted from research done by Monroe S. Sadler, '42, and Howard S. Jarrett, '51, with others in the Central Research Department of E. I. du Pont de Nemours and Company.

It is a brittle, gray manganese compound that becomes magnetic when the temperature rises above a certain point and ceases to be so when the temperature drops below that point. This transition point is predetermined by the material's chemical composition, and can be adjusted over a range of several hundred degrees by changing the composition of the compound. It is leading, the Du Pont Company reports, "to a better basic understanding of magnetism."

The Oceanographers Return

THE LARGEST of the Woods Hole Oceanographic Institution's five ships, the *Chain*, completed a five-month cruise in November that took three dozen scientists and 10 students north of the Arctic circle and into five European ports. Over the mid-Atlantic ridge, bottom samples and photos were obtained, and the heat flow from the earth's interior was measured. For nearly 20,000 miles, the *Chain* towed astern a 600-foot instrument-carrying line with which continuous temperature recordings were made. Much of the work, involving both old and new techniques, was done in the North Sea, the Norwegian Sea, and the North Atlantic between Iceland and the British Isles. The American scientists co-operated in these studies with those aboard Norwegian, British, and Scottish research vessels.

The Alumni Council's Meeting

AT ITS November meeting, the M.I.T. Alumni Council heard B. Alden Thresher, '20, discuss efforts of college admissions officers to promote the best possible use of human resources, and Francis Bitter, Professor of Geophysics, describe the powerful, new magnets to be constructed under his direction. James F. Hoey, Jr., '43, read a tribute to the late Robert W. Anderson, '43; and F. Leroy Foster, '25, reported that 6,278 individuals had contributed \$196,400 to the Alumni Fund to date. Clarence L. A. Wynd, '27, President of the Association, presided.

How We See Our Cities

A study of mental images of Boston, Los Angeles, and Jersey City suggests that our cities could be "a pleasure to live in and look at"

By KEVIN LYNCH



In Los Angeles on Seventh Street an old, two-story gray wooden building is anthropomorphized as "the little gray lady."

IT IS COMMON opinion that the city is an ugly, uncomfortable place, something to be endured in resignation. Opinion goes on to say that, since it is hopeless to try to beautify anything as big, confused, and expensive as a city, it is uncommonly lucky that most people don't pay much attention to what they see around them anyway.

It is difficult to deny that our cities are ugly and confused, but common sense is probably mistaken on the other two counts: most people *are* attentive to what they see in the streets and are much affected by it. Moreover, it is possible to give harmonious form even to something as large as a metropolitan region, although it will require resources, skill, and determination that we have until now failed to apply.

We are making comprehensive plans for city and metropolitan areas with important objectives of improving health, safety, economy, social cohesion, or traffic flow. Rarely are those plans directed to improve the look of our cities, or indeed to deal with any of

KEVIN A. LYNCH, '47, Associate Professor of City Planning at M.I.T., was co-director with Gyorgy Kepes of a study of the perceptual form of the city, and is the author of *THE IMAGE OF THE CITY* (The Technology Press and Harvard University Press, \$5.50). He is a former student of Frank Lloyd Wright and has had wide practical experience on urban projects.

those features which add pleasure to city life, the elements which have always distinguished the great cities of the world from their more humdrum neighbors. The American city planner was badly hurt in the collapse of the "City Beautiful" movement over a generation ago, and not until recently has he dared to go beyond "practical realities."

The psychological and aesthetic impact of a city is just as important, for human beings, as its effect on traffic, on productive efficiency, or physical health. The subjective response to city arrangement should be an important consideration in the preparation of city

plans. To this end, we have been engaged in some studies of the direct effect of the city on the citizen through his senses. A part of this work is reported in a recent book (*The Image of the City*) which deals with the mental picture that people have of the physical city they live in, and how that picture is put together.

Urban America has been delineated, often in acid lines, by many artists. Its features are also reflected in the words of a woman from Jersey City whom we interviewed: "This is really one of the most pitiful things about Jersey City. There isn't anything that if someone came here from a far place, that I could say, 'Oh, I want you to see this, this is so beautiful.'" Or in the comment of a more recent arrival to Los Angeles: "It's as if you were going somewhere for a long time, and when you got there you discovered there was nothing there, after all."

We were interested to see what kind of an image of their home city people carried in their heads, and how, if at all, it was affected by the actual physical shape of the city itself. For people perceive a large-scale environment only through a remembered mental image, and the quality of that mental image is the ultimate source of their pleasure in their surroundings, or of their disgust. Whether that picture is clear or confused, meaningful or blank, intimate or alien, stimulating or dull, is what determines whether one's city is great or mean.

Beyond conducting another opinion poll, we were interested to learn how physical changes affected the mental image, and to verify and develop our own in-

tuitions about the design of cities. In particular, we believed that one important ingredient of a handsome city was that it be "legible," or "imageable," i.e., that it be easy for a resident to put together a clear and vivid mental picture of his town. If this were true, we wanted to learn how the trick was done. We suspected that such clarity would do more than simply help one to find one's way easily: that it would prove to be a fundamental source of security and pleasure.

A number of tests were made of the central areas of three American cities: Boston, Los Angeles, and Jersey City. A careful analysis was made in the field, picking out the visual strongpoints, and how they linked together or failed to do so. Old residents were interviewed at length about their picture of the city: they were asked to characterize it, draw maps of it, or tell us how to get from one place to another. People were stopped on the street for quick descriptions and directions, others were taken for long walks, or asked to identify photographs.

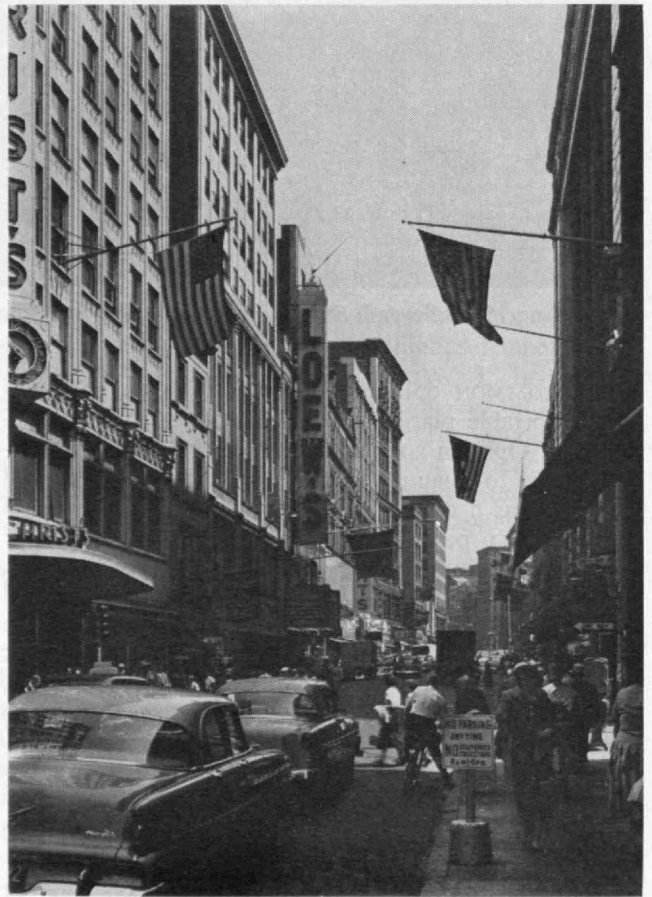
When we compared these various views of the city, we found remarkable similarities—there seemed indeed to be a sort of "public image" of a city. And we concluded that we were able to predict most of the public image from our original analysis of the look of that city. We found that people used rather standard ways of putting their mental picture together, imagining their city to be a mosaic of distinct districts, or a network of pathways, or a constellation of focal points and landmarks. We were able to say something about how a planner should lay out a city if he wants the residents to hold a clear mental image of it.



Scollay Square in Boston: people cannot recall its shape.



Boston's Louisburg Square is vividly remembered.



This Boston corner is the center of the city's center.



A street in Jersey City. "You can't decide which avenue you want to go on, because they're more or less just the same."



Pershing Square is a strong element in Los Angeles.

We found, for example, that nearly all the Bostonians we interviewed knew and loved the Common, and made it a central pivot of their mental map. With almost equal unanimity, they could not sketch its boundaries correctly, or imagine clearly how to go from one side to the other. This failure produced a surprising amount of concern, even in memory. As a contrast to the Common, most of them could not recollect the area between Haymarket and the North Station, except as a vague impression of chaos and weariness.

For each city, we could in the end draw a rather detailed map which illustrated, not the "real" physical city, but the distorted reflection of it, suffused with meaning and emotion, that appeared in men's minds. Each city had its own interesting peculiarities, but there



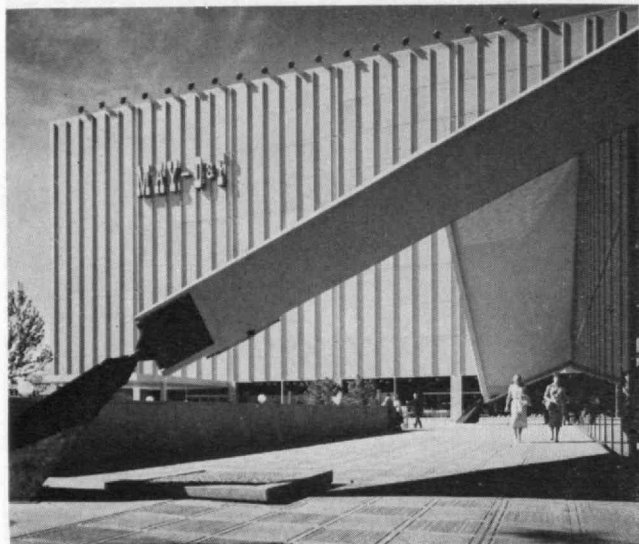
Bunker Hill is isolated in the image of Los Angeles.

were enough similarities in the relations between image and reality to make us think that we had some clues for the design of cities: ways to make a street system easy to move through mentally, ways to make a focal point vivid, or a district distinct and memorable.

These clues may in fact prove mistaken or superficial. Our more stubborn conclusion is that we must begin to put our minds and our resources to building cities that are a pleasure to live in and to look at, cities that can be remembered and imagined with clarity and affection. We remain convinced, not only that our cities are ugly, but that we pay a price for that ugliness. We believe that we are learning ways by which the alien and confusing landscape in which we live can be brought closer to heart's desire.

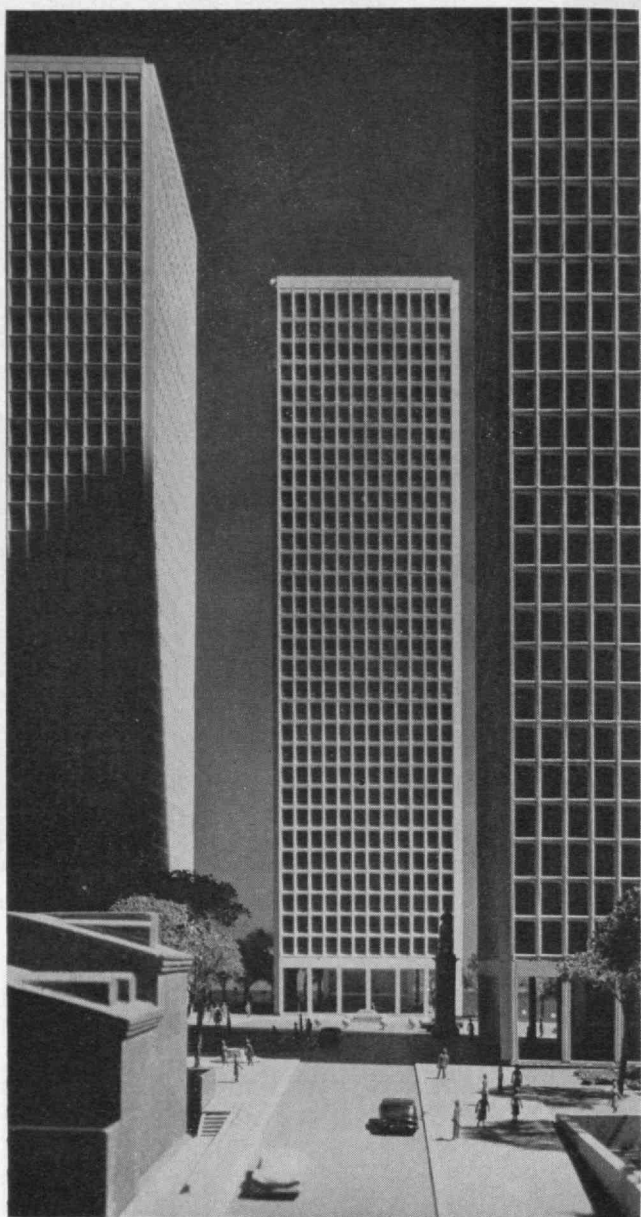
Some Work

By I. M. Pei

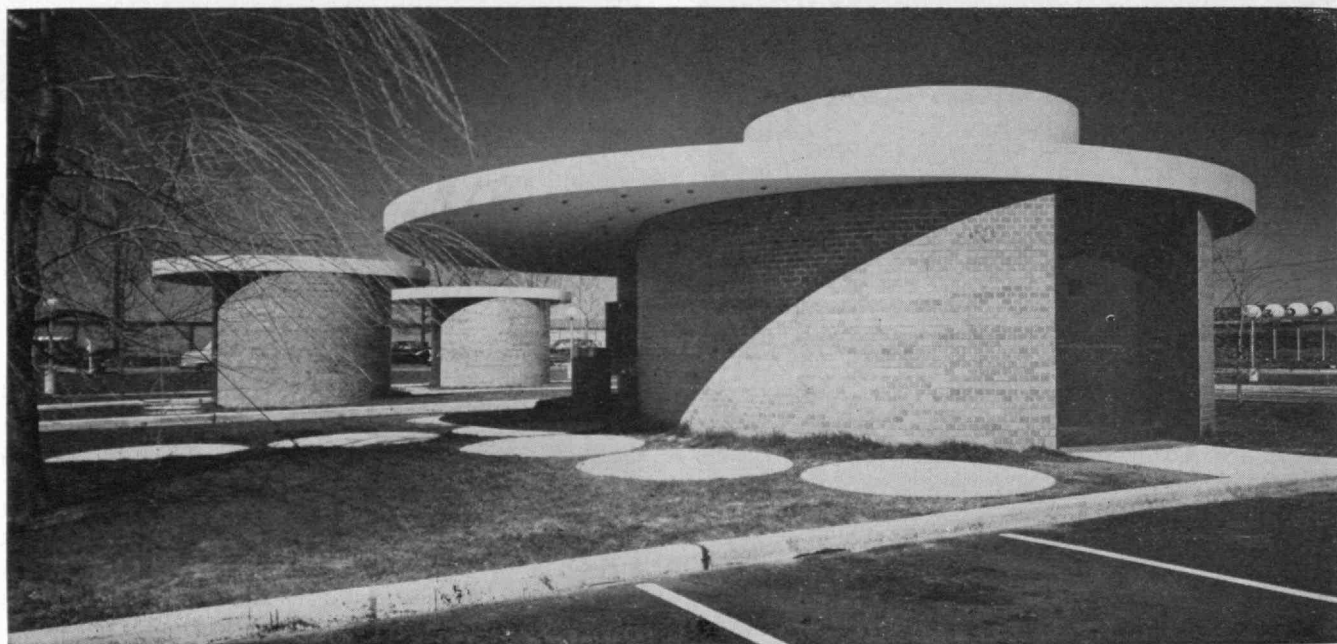


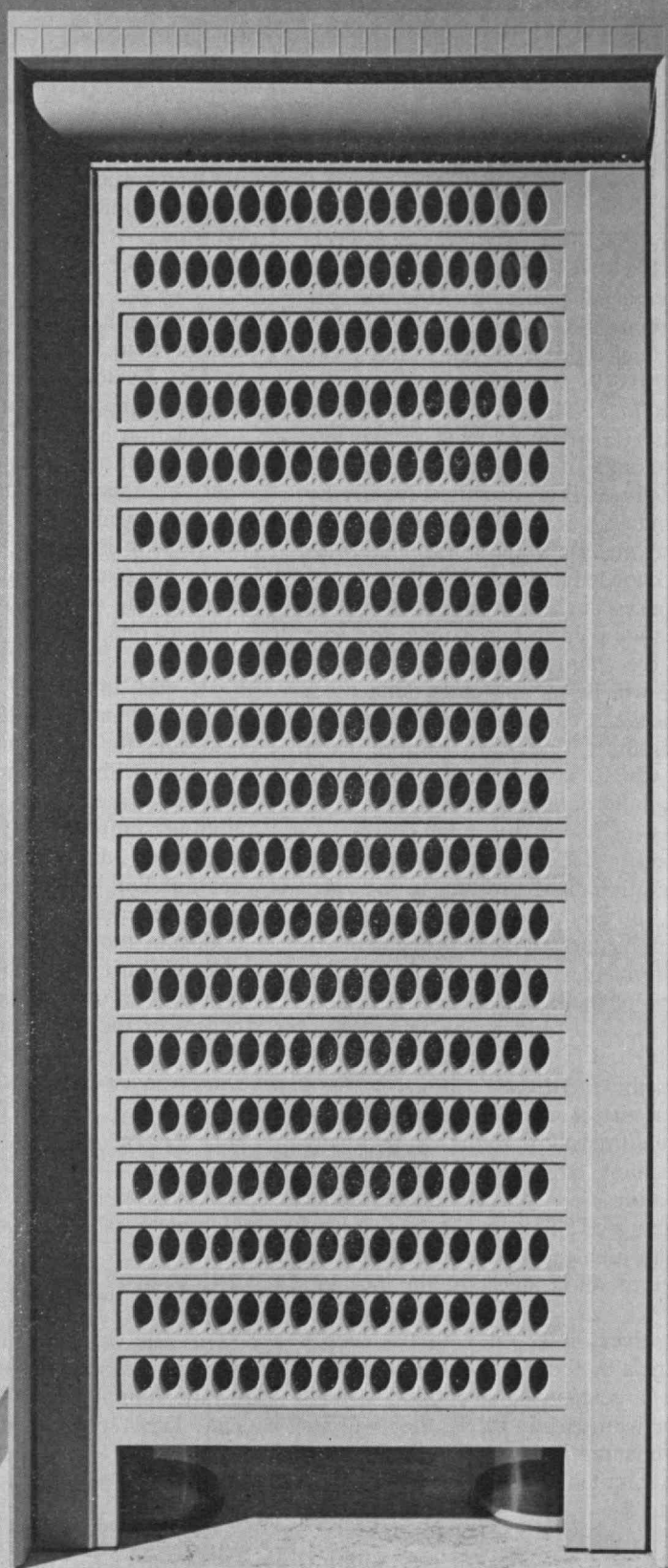
THE M.I.T. Earth Sciences building pictured on the next page, *Time* magazine recently forecast, will "act like a flagpole in a public square, drawing the surrounding laboratories and dormitories into an organized composition."

Other examples of the work of its architect, I. M. Pei, '40, are pictured on this page: Above is a Denver department store, at the right is a model of the Washington Square East Redevelopment Area on Society Hill, Philadelphia, and below is a bank drive-in center in Nassau County, on Long Island.



Photos by Warren Reynolds, George Cserna, and Ezra Stoller





Institute Yesteryears

25 Years Ago . . .

IN THE REVIEW for January, 1936, Augustus B. Kinzel, '21, recalled that: "In 1914 two events occurred which gave to alloy steels a remarkable impetus. One was the outbreak of the World War; the second, the commercial production of stainless steel. Today, 22 years after these epochal events," he wrote, "I venture to envisage the position of alloy steels in 1944, 30 years from their coming of age, from the viewpoint of logical engineering applications and economic advantages. . . .

"The improved steels have been accepted readily by the public. Their advantages are well understood, although occasionally the materials are misapplied with disastrous results. As knowledge regarding the proper use of these steels increases, such misapplication should become a rarity, and as we gain in experience, the true field of these steels in the chemical industry, transportation, and architecture will be more clearly delineated.

"With all of the excellent characteristics, corrosion resistance being the foremost, and with freedom from some of the troubles which have limited progress in the past, the only remaining deterrent to the wide consumption of stainless steel lies in the final cost. . . . It has been stated recently that a yield of 50 per cent from ingot to sheet or other final product is the rule, rather than exception, in the production of stainless steel. With better melting practice, improvement in heating and rolling equipment, and increase in specialization in the production of these steels, we cannot help materially increasing this yield [and hence accomplishing] an appreciable reduction in the cost of the finished stainless-steel product within the decade. . . .

"We have with us at the moment a rapid development in as-rolled structural alloy steels, a relatively stable situation in the alloy engineering and automotive steels, and a situation ripe for new development and expansion in stainless steel. This would tend to lend some justification to the highly speculative prophecies for enormous tonnages of alloy steels in the not too distant future.

"Let us content ourselves, however, with the simple prediction that alloy steels in the decade will become a major item even in the large-tonnage steelmaker's portfolio, and that, together with carbon steels, they will increase the total steel consumption and effectively combat the ever-present attempted inroads of nonmetallic and nonferrous products."

¶ Kudos evidenced by medals came to four Alumni, namely, to *Charles R. Richards*, '85, the Michael Friedsam of the Architectural League of New York . . . to *George E. Hale*, '90, the Frederic Ives of the Optical Society of America . . . to *Warren K. Lewis*, '05, the Perkin of the American Section, Society of Chemical Industry . . . and to *Edward C. Wentz*, '14, the Progress Medal of the Society of Motion Picture Engineers.

50 Years Ago . . .

IN JANUARY, 1911, Arthur Amos Noyes, '86, took office as the 18th President of the Alumni Association, with Frederick K. Copeland, '76, as Vice-president. Walter Humphreys, '97, was re-elected for a fifth term as Secretary-Treasurer, in which portfolio he served the Association from 1907 to 1923. The Alumni Term Members nominated for the Corporation were: Arthur Winslow, '81; Henry Howard, '89; and Henry A. Morss, '93.*

¶ The 36th Annual Banquet of the Alumni Association, held at the Hotel Somerset on January 4, was, as The Review reported, "full of genuine enthusiasm and was one of the most profitable meetings that the Association has had for many years. There were about 400 present and although the program was long, nearly every man remained until shortly before midnight when the last speaker had finished. A. Farwell Bemis, '93, the retiring President, proved himself to be a most resourceful toastmaster, and his unexpected sallies livened up the program which was, in its general nature, a serious one."

¶ It was announced that: "The tremendous increase of alumni interest all over the country has made it necessary for the Alumni Association to establish closer relations with its members, and it has therefore been decided to issue The Technology Review monthly, beginning January first [1911], excepting during the months of August, September, and October. The October number is omitted because it would contain little fresh Technology news, as the Institute does not open until that month. . . . The minimum number of copies printed during 1911 will be 4,200. . . . Although the publication of the monthly largely increases the expenses of the Association, it is believed that the enterprise will greatly add to the *esprit de corps* and will win stronger support from former students." **

62 Years Ago . . .

IN JANUARY, 1899, there was published Volume I, Number 1, of The Technology Review.

75 Years Ago . . .

"THE ELEVENTH Annual Meeting and Dinner of the Alumni Association was held at Young's Hotel on Saturday, January 2, 1886, about 50 members being present. The report of the Secretary and Treasurer was
(Concluded on page 48)

* Mr. Morss was elected a Life Member of the Corporation, in 1919; he served as the 25th President of the Alumni Association during 1918-1919.

** The monthly schedule was continued until 1918; from then until 1922 the magazine was issued quarterly. Since 1922, The Review has appeared monthly during the academic year.

THE INSTITUTE'S GROWTH can be traced in the columns of figures on the next page, covering registration, the instructing staff, and degrees awarded. Also listed are leading states and countries from which students have come.

	One Year Ago 1959-1960		25 Years Ago 1935-1936		50 Years Ago 1910-1911		75 Years Ago 1885-1886	
	No.	%	No.	%	No.	%	No.	%
Total Registration	6,270	100	2,540	100	1,506	100	609	100
Freshmen	936	14.9	561	22.1	365	24.2	187	30.7
Other Undergraduates	2,644	42.2	1,457	57.3	1,105	73.4	422	69.3
Total Undergraduates	3,580	57.1	2,018	79.4	1,470	97.6	609	100.0
Graduate Students	2,690	42.9	522	20.6	36	2.4		
States Represented	49		45		42		34	
Massachusetts	1,565	25.0	1,088	42.8	840	55.7	387	63.5
Other New England	303	4.8	181	7.1	117	7.8	78	12.8
Total New England	1,868	29.8	1,269	49.9	957	63.5	465	76.3
Foreign Countries Represented	70		33		29		5	
Foreign Students	739	11.8	139	5.5	102	6.7	11	1.8

Total Instructing Staff	2,010	100	529	100	246	100	62	100
Faculty Members	653	32.5	245	46.3	91	37.0	27	43.5
Students per Staff Member	3.1		4.8		6.1		9.8	
Students per Faculty Member	9.6		10.4		16.6		22.6	

Total Degrees Awarded	1,824	100	639	100	254	100	60	100
Bachelor's	844	46.3 (a)	428	67.0	232	91.3	59	98.3
Master's	698	38.2 (b)	157	24.6 (d)	20	7.9	1	1.7 (f)
Advanced Engineering	83	4.6						
Doctor's	199	10.9 (c)	54	8.4	2	0.8 (e)		

a. First S.B. in Aeronautics & Astronautics, to Rodolfo S. Agulló, '60.

b. First S.M. in Aeronautics & Astronautics, to John J. Blaszkak, '58.

c. First Ph.D. in Ceramics, to Jonathan D. Klein, '60; first Ph.D. in Mechanical Engineering, to Paul J. Berenson, '56.

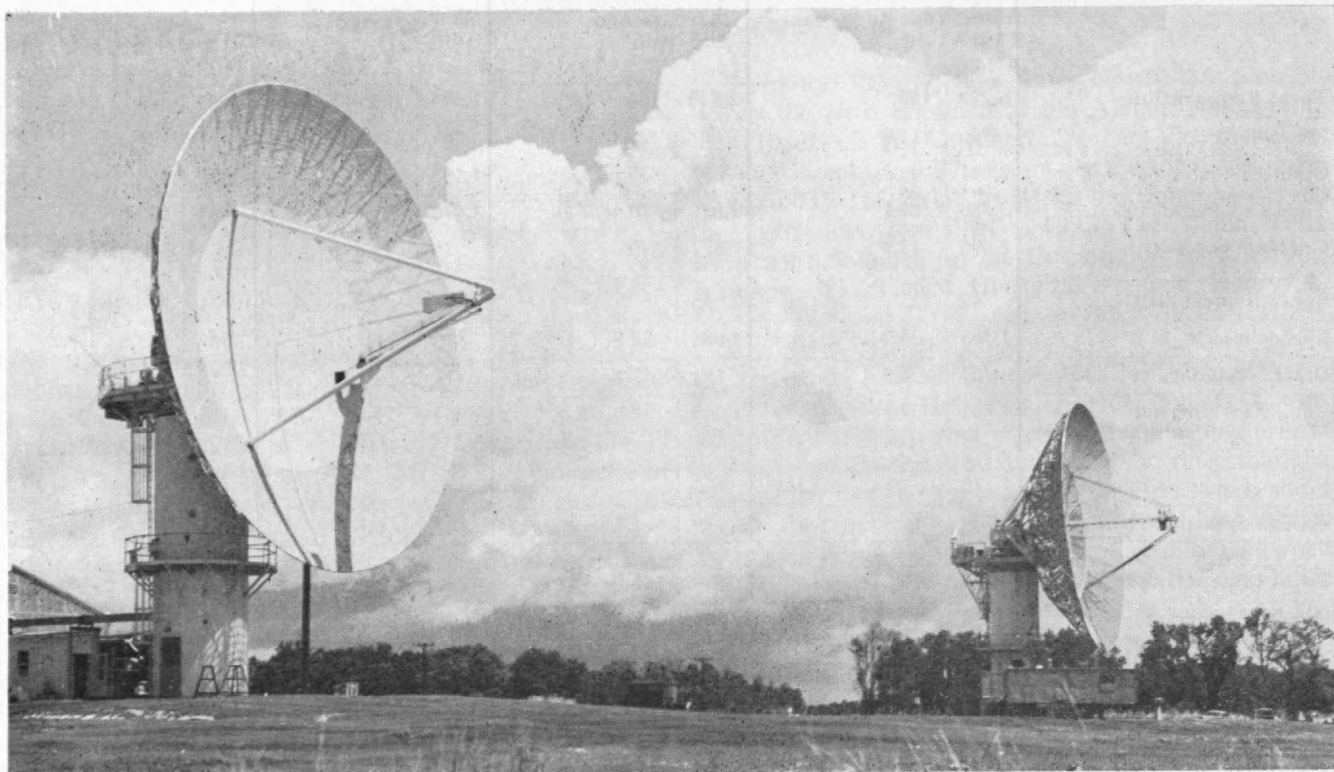
d. First S.M. in Ceramics, to Richard O. Lane, '36; first S.M. in Petroleum Engineering, to Eldon N. Dunlap, '36; and first Master in City Planning, to J. Ross McKeever, '36.

e. First Ph.D. in Biology, to Eugene C. Howe, '08; and first Sc.D. given by M.I.T., in Electrical Engineering, to Reginald L. Jones, '09.

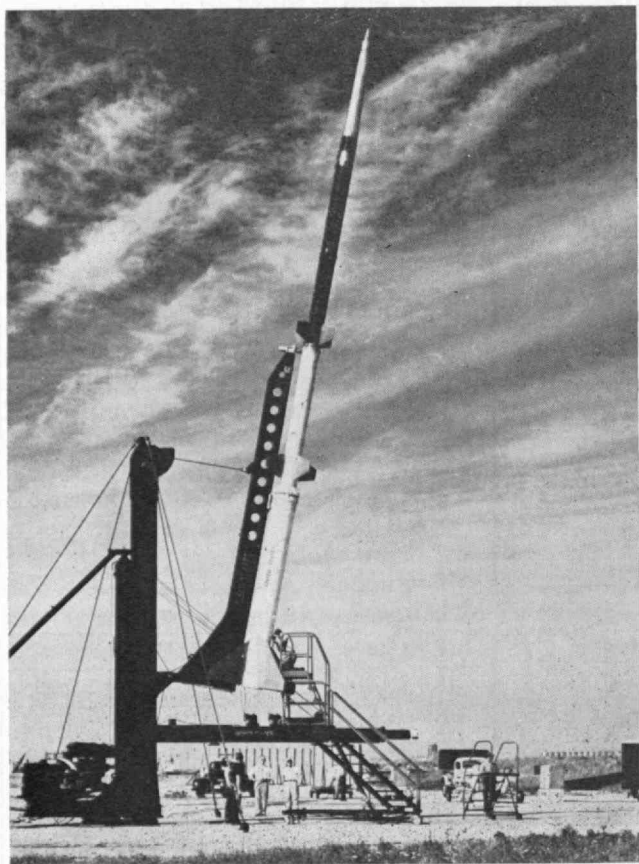
f. First advanced degree given by M.I.T.; S.M. in Chemistry, to Frederick Fox, Jr., '85.

	No.	State	No.	State	No.	State	No.	State
Leading States Outside of New England	938	New York	361	New York	106	New York	20	Illinois
	348	New Jersey	143	New Jersey	37	Pennsylvania	18	Ohio
	314	Pennsylvania	104	Pennsylvania	33	Illinois	17	New York
	250	Illinois	76	Illinois	33	Ohio	15	Pennsylvania
	202	California	58	Ohio	21	California	6	Iowa
	172	Ohio	39	Missouri	18	New Jersey	5	California
	128	Michigan	38	California			5	Kentucky
	124	Florida	23	Colorado			5	Minnesota
	95	Texas	20	Maryland			5	New Jersey
			18	Michigan			5	Virginia
			16	Texas				

	No.	Country	No.	Country	No.	Country	No.	Country
Leading Foreign Countries	106	Canada	35	China	27	China	6	Canada
	63	India	29	Canada	18	Canada	2	United Kingdom
	31	China (Taiwan)	12	Cuba	9	Mexico	1	Chile
	31	France	8	United Kingdom	5	Argentina	1	Cuba
	31	Israel	6	India	5	Cuba	1	Japan
	31	Korea	5	Japan				
	25	Colombia	4	Mexico				
	24	Brazil	4	Union of South Africa				



Walloping the Atmosphere



Trailblazer I has six stages. Three carry it up to an altitude of more than 150 miles. Three others speed it back.

THE SONIC BOOM created by a jet plane going hundreds of miles an hour is trivial—a mere ripple—compared to what happens when a vehicle that is going thousands of miles an hour wallops the atmosphere. A missile or space probe approaching the earth's surface with hypervelocity makes the air as hot as the sun and turns it into a plasma, the so-called "fourth state of matter."*

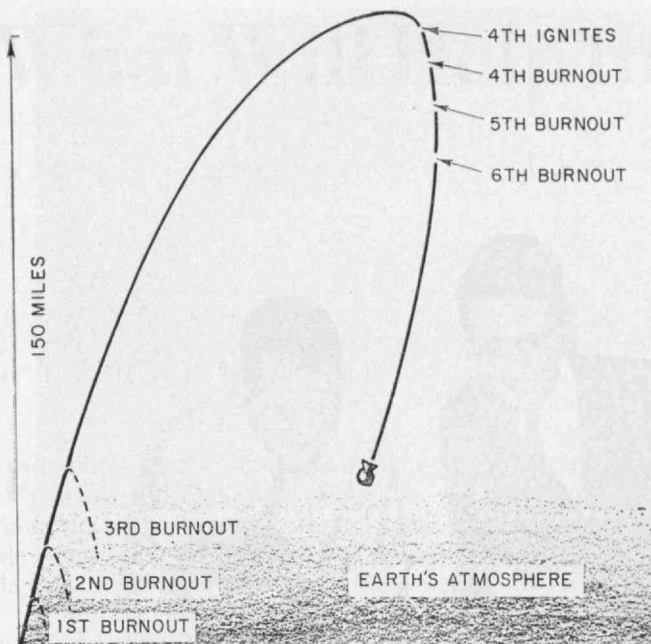
The drastic changes affect all known communication, detection and tracking techniques. M.I.T.'s Lincoln Laboratory, consequently, is studying the phenomena associated with re-entry into the atmosphere in order to:

- ❑ Assist in the solution of problems related to the nation's defense against ballistic missiles, and
- ❑ Help evolve better techniques for locating and communicating with homeward-bound spacecraft

The physics of re-entry can be studied in three ways: in theory, in the laboratory, and in the field. All three approaches have been taken. The field work, of course, is the most spectacular. This is being done now in cooperation with the National Aeronautics and Space Administration (NASA) at its Wallops Station, on Wallops Island, Va.

There, a six-stage rocket called Trailblazer I is used. It is a slender, 55-foot-long vehicle that is sent upward by three of its six stages and accelerated downward by the other three. The pay load is the sixth and final stage of the rocket itself, a sphere only five inches in diameter.

* See "Plasma Research: A Case History," by William P. Allis (Technology Review, Nov. 1960, p. 27).



Arbuckle Neck (Va.) Field Station radars track vehicles that follow course shown above. Antenna at far left on preceding page serves a combined UHF and X-band radar, while the one at right is an S-band tracking system.

Lincoln Laboratory probes re-entry phenomena with a powerful array of radars and cameras when six-stage rocket vehicles are launched

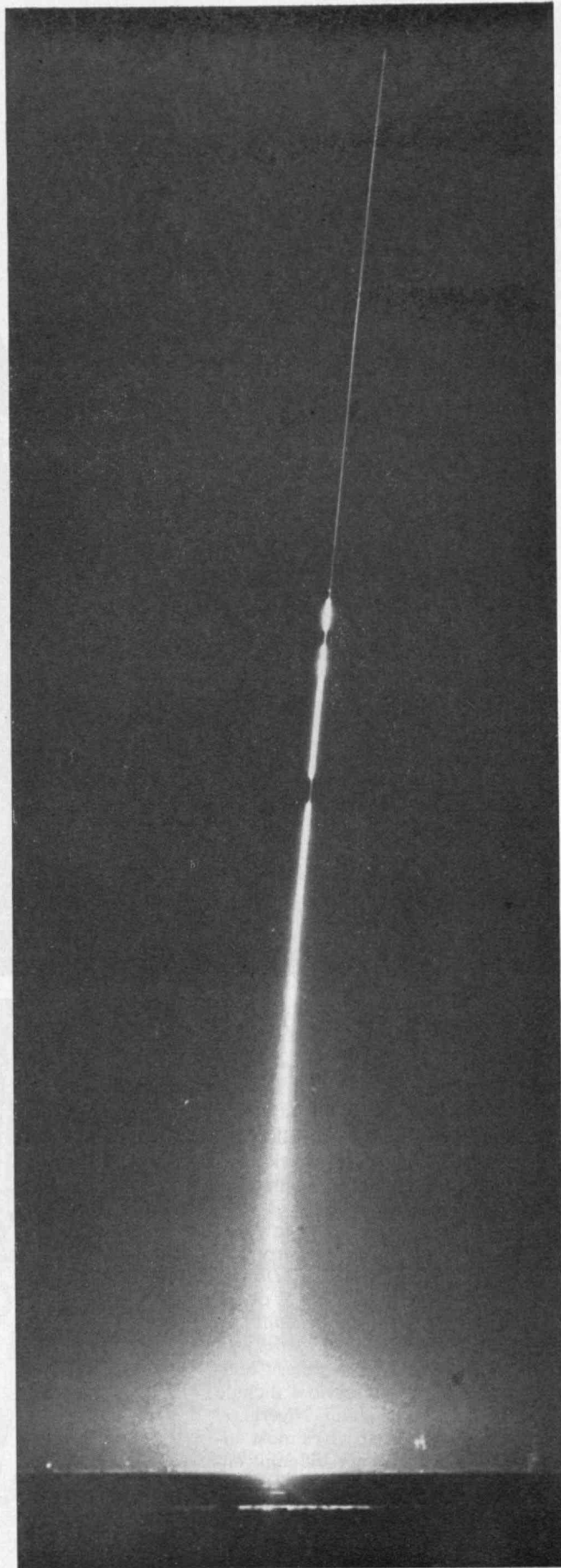
The first three stages hoist the "velocity package" from 150 to 200 miles rather deliberately. Spin-stabilized like a rifle bullet, this arrow then is aimed back toward the launching pad and an impressive array of radar and optical apparatus. The fourth and fifth stages let go only seconds apart. The spherical sixth stage then gives itself a final push. In its wake, as it hurtles down with more velocity than a bullet, it leaves a fiery trail of electrified gas. Radars and cameras probe and test the strength of this trail's radiation and reflectivity.

Including three development shots, seven Trailblazers now have been sent aloft. NASA's predecessor, the NACA, started the development of this vehicle, and it is being continued with Lincoln Laboratory's help. A second generation vehicle, Trailblazer II, will boomerang its pay load similarly, but will carry a large re-entry package and have only four stages (two to fire it up and two to accelerate it down). This rocket will be available in a few months. Soon, too, more powerful radar and sensitive optical equipment will be in operation at Lincoln's Arbuckle Neck, Va., field station adjacent to Wallops Island.

Glen F. Pippert of Lincoln Laboratory presented a technical paper entitled "The Measurement of the Phenomena Associated with Hypervelocity Re-entry into the Atmosphere" in November at the Northeast Electronics Research and Engineering meeting in Boston.

The amount of optical and infrared radiation during a flying object's re-entry and the variations in the radar signals reflected at three different frequencies are among the measurements which are being made. Tracking ra-

(Concluded on page 52)



This is a Trailblazer I ascending from NASA launching pads at Wallops Island, Va., for field study of re-entry physics.



M.I.T.'s New Agents Of Change in Africa

THE FIRST MEN chosen as Fellows in the M.I.T. School of Industrial Management's new African program were the eight members of the Class of 1960 shown above: (Left to right, in rear) Charles H. Olmstead, Henry B. Thomas, David N. G. Carter, Donald H. Shaw, and (in front) John S. Glass, William P. Mott, 3d, William L. Hooper, and Frederick E. Mangelsdorf. All have master's degrees. Countries welcoming their services include Uganda, Tanganyika, and Nigeria.

These men and their wives must adjust themselves to a very different environment from that in which they grew up. The wives pictured at the right are (from left) Mrs. Mangelsdorf, of Chappaqua, N.Y.; Mrs. Shaw, of Arlington, Mass.; Mrs. Mott, of Orinda, Calif.; and Mrs. Hooper, of Belmont, Mass. (Mrs. Mangelsdorf and Mrs. Shaw have studied Swahili.)



What Will Help the Ajax Company?

Africa's troubles can be compared to those of a business firm . . . M.I.T. men are there to aid

BY CARROLL L. WILSON

THE PRESIDENTS of large or rapidly growing companies, with many variables to reconcile, often think their jobs are difficult. But their tasks seem simple when compared to those of the leaders of newly independent political entities such as we see in Africa.

In the colonial administrations which preceded the establishment of these nations, authority flowed from above rather than from a consensus of those governed. This was true no matter how enlightened a colonial administration was in terms of developing institutions of self-government. Independence brought a "change of state" because this authority from above disappeared. Hence, the leaders of these new states must develop instruments of power in a new kind of framework. Even a political party is a relatively new thing in Africa.

One of the bewildering aspects of the situation in the Congo—both to an outsider and to those attempting to exercise authority—is that the leaders lack the usual instruments of power, because they have neither a well-established political party behind them nor firm control of the army and police. Moreover, the United Nations forces sent there to keep "law and order" have denied these leaders the usual courses of action which lead to the establishment of one person or another in authority—such as armed conflict to determine the victor.

In judging the performance of leaders in newly independent nations, we should try to understand the kind of problems that confront them and the difficult choices they must make. Because few of us have been political leaders but many of us have had executive responsibility in business, I am going to describe some of the problems of these new nations in industrial terms. A business case, that of the Ajax Company, may help us as an analogue:

The Ajax Management

Ajax was formerly a wholly owned subsidiary of the Hercules Company, a large, diversified company operating on a world-wide scale. During the many years that Ajax was part of the Hercules Company, the Hercules head office set all major policy and the men in managerial positions in Ajax nearly all came from other Hercules operations.

For eight or 10 years increasingly serious labor troubles plagued Ajax. About five years ago the Hercules management decided to dispose of a major part of its interest in Ajax. Two years ago Hercules transferred practically all of its interest to the present owners, retaining only a minority interest in Ajax.

The president and three of the vice-presidents of Ajax

CARROLL L. WILSON, '32, is now professor of industrial management (visiting). Formerly general manager of the Atomic Energy Commission, he has had extensive experience with both government and industry. He has used the case of the Ajax Company in seminars and in a talk for the Alumni Council to show the complexities of African problems.



were leaders of the Ajax union during the period of severe labor troubles. They became the top management of the company when Hercules disposed of its interest. These officers have had extensive experience as labor organizers and leaders but only brief experience as managers. There has been no union since Ajax became independent, because the employees now own a controlling interest in the company. Each employee has one vote in meetings for the election of representatives and officers. According to the bylaws, the employees vote for 30 department heads who constitute a council which is the real governing body of the company. A majority of these department heads, or a coalition if there is no majority, names the president.

If a majority of the department heads meeting in council withholds approval of a management proposal, the council is dissolved. Each department head, including the officers, then seeks re-election. After the elections the new council names a president, who in turn selects vice-presidents.

Dissenting department heads have access to the company bulletin boards and public address systems as well as to the company house organ to express their criticism of the management.

The Business Outlook

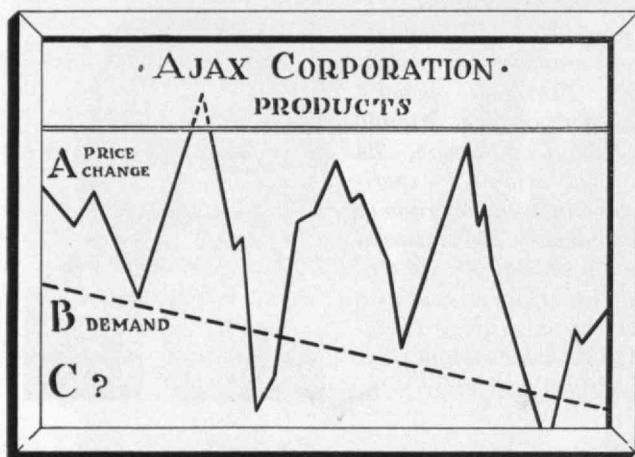
Fifty per cent of Ajax's sales are of product A, a basic staple sold in world-wide markets. Labor and material costs are a high percentage of its sales value (relatively little value is added by manufacture) and the price of product A fluctuates widely; it had ranged from 280 to 130 during the last two years.

Thirty per cent of the sales are product B, another basic staple, the market for which is declining because

of competition from a competitive synthetic. Product B is produced by a number of regional units in which manufacturing methods have not changed much for many years.

One proposed new product, C, could be sold in a growing market with a stable price outlook, but setting up to manufacture this product would require a large capital investment. Most of this capital would have to be raised from outside sources.

The 30 departments' employees speak six principal languages and 40 subsidiary languages. Only department heads, superintendents, and a few foremen speak a common language. Most of the employees are illiterate. The personnel of the 30 departments is also divided among three main religious groups which have different



holidays and customs and rather intense antipathies toward each other.

The employees anticipate periodic wage increases to fulfill promises that they would benefit greatly from Ajax's independence from Hercules. The president has kept the Ajax employees well informed about the company's problems and its progress. At his request a year ago the employees accepted postponement of a wage increase so that the company might strengthen its financial position in the hope of attracting the capital needed to produce the new product C. A major problem of the Ajax management is to increase productivity, so that Ajax products will not be priced out of the world markets in which they are sold.

The industry's condition is one of great fluidity. There is a great deal of maneuvering for mergers, acquisitions, and combinations of various kinds. There are no antitrust laws or other legal restraints.

There is an industry association which meets as a whole for several months each year and in committees during much of the year. The industry association's headquarters are in a city remote from Ajax's headquarters, and the president or the vice-presidents in charge of sales and finance must spend much of their time on affairs of the industry association.

The Immediate Situation

Prices of product A have fallen below the break-even point, necessitating lay-offs in 10 departments and resulting in acute distress among employees. Two dissident department heads are going to bring before the council a proposal to raise wages and fringe benefits. If it is adopted over the objections of management, the

management will fall. Such an increase will tend to price the Ajax products out of their markets.

A number of consultants have been retained in the past two years, and one has just prematurely published findings critical of the management. This is the second or third time that consultants have provided ammunition for dissident department heads to use against the management.

Two giant companies, Prometheus and Aeolus, both of which are larger than Hercules, are making numerous offers to help Ajax by offering training programs, setting up new departments, advising on production and sales, or lending money at low rates. Prometheus is a tight-line organization with an impressive record of growth, but it has taken over companies it has offered to help in the past. Prometheus does an excellent planning and programming job and can cite excellent ratios of overhead costs to direct costs. Aeolus is a very loosely organized company with consultative management, many committees, and poor planning. It is a rich firm that has helped others without absorbing them. But Aeolus always urges companies which it helps to adopt exactly the same organization and management programs which it uses.

Aeolus has numerous informal groups within it which are so loosely connected with the company that they are able to make arrangements without any reference to the management of Aeolus. They can be hired as consultants and to perform services. Ajax can accept or reject their advice without getting into difficulties with Aeolus as a company.

Stability Brings Credit

As is customary in presenting a business case, we do not provide the answers. It is clear, however, that the instability of management, growing out of the strange and difficult features of the bylaws, makes it virtually impossible for any management to take the kind of actions that are needed, including those which are unpopular, and still have sufficient opportunity to carry out a wise program.

In a like fashion, the leaders of new nations, looking at the parliamentary institutions which they borrowed from the colonial powers, find numerous limitations in them. Hence, they often move to amend the bylaws to provide greater continuity and stability for their regimes. One such action leads to another to make the power of those on top more secure.

Justifications for such steps, which seem to outsiders to have the earmarks of emergent dictatorship, are found in many directions. All the African nations, for example, need capital from the outside for economic development programs. But countries which have weak and changing governments do not attract outside investors whether they are private firms or such institutions as the World Bank. Nations with strong and secure governments are generally better credit risks.

In the case of the Ajax Company the president could very well conclude that, in order to raise the capital for the plant needed to produce product C, he must convince the lender that his government is both prepared and able to balance its budget, honor its commitments, and fulfill the repayment provisions. This would require the strength to take unpopular actions such as resisting the proposed wage increase. Such a program

would obviously lead, if successful, to much greater prosperity and security for the employees of Ajax, but the immediate sacrifices required from them might be substantial.

Another problem which confronts the president of Ajax is where to turn for help. With Prometheus (as with the U.S.S.R.), all deals with it must be official, and made through the front office. But Aeolus (which resembles the United States) has unofficial groups—private institutions of all sorts—with which the president of Ajax can make deals quite independently of the official organization.

An American Advantage

An African nation can make or terminate arrangements freely with private institutions, whereas official aid through official channels is hard to cancel without giving offense. Herein lies a very important advantage for the United States. It is not only an advantage in meeting the variety of needs of these new nations but also a competitive advantage vis-a-vis the U.S.S.R.

Our private financial institutions, business organizations, and especially our educational institutions operating with the support of great foundations, permit us to meet various needs of these new nations in a variety of ways and do so quite unofficially. We can, if we wish, move expeditiously and imaginatively in exploiting these opportunities.

Last October, for example, a plan to send M.I.T. Fellows to Africa was announced. After receiving master's degrees in the School of Industrial Management, eight young men embarked upon two-year tours of duty as employees of institutions in three African countries. The institutions employing them are engaged in various economic development activities. This idea originated

in a class which I conducted the first term of last year and took shape about the middle of January. The opportunity arose from my observations in Africa in the summer of 1959. It seemed to me then that one of the great needs in Africa was for people with technical and business training. The new African organizations had plenty of advisers, consultants, and employees of other governments available to advise and assist. But they needed employees of their own to formulate new projects, prepare applications for assistance, and review and allocate resources. With a growing amount of aid likely to be forthcoming, the bottleneck might prove to be the scarcity of people, within the local governments and related institutions, able to select and prepare the cases and process them.

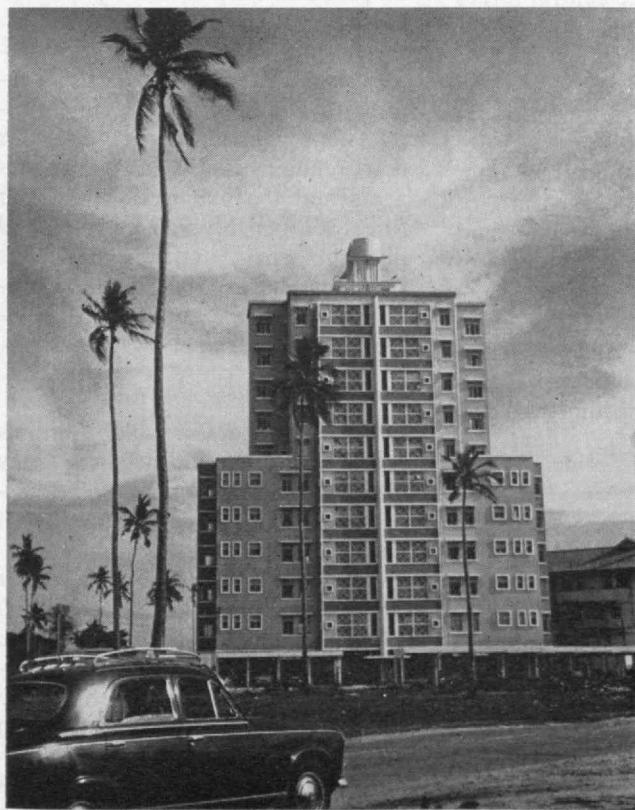
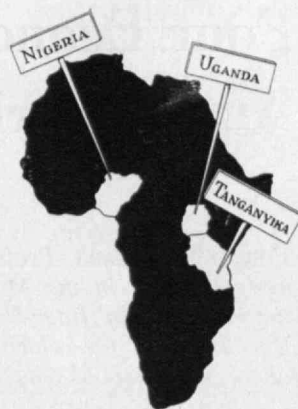
Men receiving their master's degrees in Industrial Management at M.I.T., many of whom would have an undergraduate engineering education, seemed exceptionally well qualified to serve as staff assistants in such organizations. The enthusiastic response of the class led to the steps which were taken. Financial support was assured by the Ford Foundation, and a trip to London and to several countries in Africa resulted in identifying and working out arrangements for positions for M.I.T. men in Uganda, Tanganyika, and Nigeria.

Arrangements were completed by the middle of April, 1960. This speed was possible only because of the willingness of the employers in the African countries to deal directly with a private American institution, reserving in every case the right of termination on relatively short notice if the arrangement did not work.

The program is modest in scope but the men are located in quite strategic positions. The contributions they will be able to make will depend largely upon the vigor of the institutions by which they are employed and the extent to which their bosses find ways of using them. Much initiative is called for. The M.I.T. men must adjust themselves to living and working in a very different culture from that in which they grew up. As "agents of change," moreover, they will be active participants in a process that is poorly understood. The program will be reviewed in Africa early this year to determine how it is going and the directions in which it might be extended.

The number of Americans who can be absorbed in such a program will be very small in relation to the needs. It is essential, therefore, that all who go be the best that we produce.

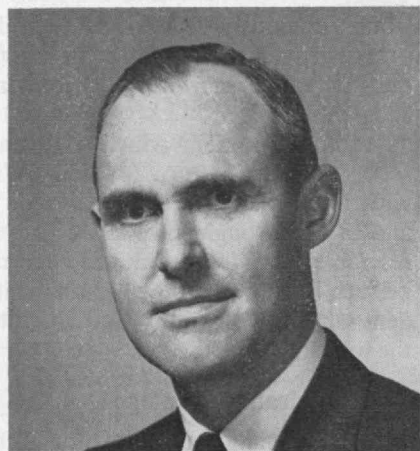
These parts of the world have seen missionaries, occasional mining engineers, and government officials, but young Americans such as the M.I.T. Fellows are a new phenomenon. Even a few such men, appropriately placed at a time of great fluidity and change, can have an important impact on the development of these nations and their relations and feelings towards this country. The M.I.T. Fellows in Africa are conscious of the importance of their missions. Their performance will reflect credit both upon M.I.T. and the United States.



An apartment house in Dar es Salaam, Tanganyika, Africa.

Four Economists Foresee An Industrialized World

FOR SEVEN YEARS, Professor Charles A. Myers (at right) and several of his colleagues in the M.I.T. Industrial Relations Section have been participating in an Inter-University Study of Labor Problems in Economic Development, for which the Ford Foundation provided financial assistance. Several books have resulted from this study. One of them, *INDUSTRIALISM AND INDUSTRIAL MAN* (Harvard University Press, \$6), has been summarized as follows by Derickson Bennett of the Harvard News Office:



FOUR ECONOMISTS expect an acceleration of industrialism around the world that "in another 100 years will have swept away most pre-industrial forms of society." They predict that, in spite of different leadership in the industrialization process—by the middle class, nationalist leaders, colonial administrators, revolutionary intellectuals, or old families—there will be a general convergence of East and West on the road to industrialism.

Signs of this convergence are already evident, the authors say: a middle class bureaucracy is developing in some nations of the East; central governments of some Western states are assuming more and more responsibilities. As this convergence continues, the authors foresee in most nations a powerful central state, a crucial role for the middle class (or in some areas, the middle bureaucracy), man governed by a web of rules and united within interest groups to protect his rights, great conformity on the job, and a new freedom of leisure.

How industrialism will affect mankind's future is charted in *Industrialism and Industrial Man*, by four leaders in labor economics:

Clark Kerr, President of the University of California; John T. Dunlop, Professor of Economics, Harvard University; Frederick H. Harbison, Professor of Economics, Princeton University; and Charles A. Myers, Professor of Industrial Relations, M.I.T.

"To predict the future with any accuracy," these writers say, "men must choose their future . . . The future they appear to be choosing and pressing for is pluralistic industrialism . . . where there is one locus of power, there will come to be several; where there are many, there will come to be fewer."

The Central Forces

The authors cite three central forces that will mark the push toward industrialism in this form:

¶ In the name of efficiency and initiative, some decentralization in the consumer goods and service trades industries is necessary, but there will be a large measure of central control by the state and responsibility for the conduct of many operations by large-scale organizations.

¶ Skill level rises and jobs become more responsible . . . with this skill and responsibility go the

need for consent, and with consent goes influence and authority. Occupational and professional groups achieve some prestige and authority as against both the central organs of society and the individual members of the occupation or profession.

¶ Education brings in its wake a new economic equality and a consequent new equality of political outlook; the universal industrial mass. This helps bring consensus to society. Education brings a demand for liberty and can help create conditions in which it is safe to give it.

These forces—complexity of industrial society, higher skill levels, and universal education—foster a "new realism" that rejects both utopia and hopeless despair, the economists say.

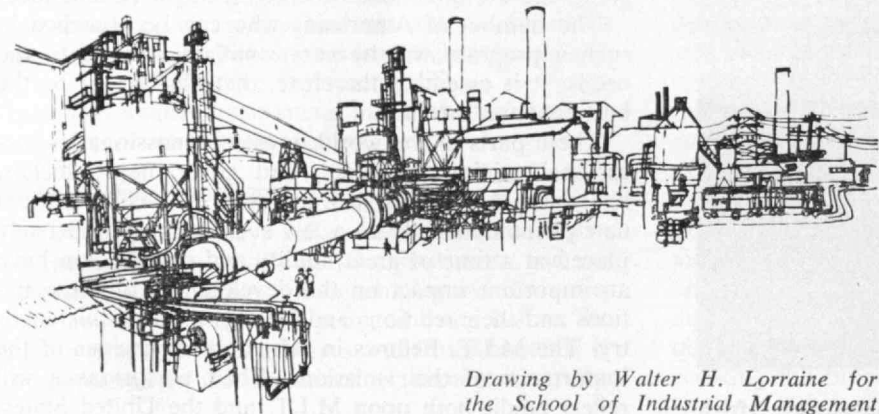
This new realism accepts industrialism as a complicated mechanism that must be kept going without major disruption. It calls for new relations between the managers and the managed. The labor force accepts the web of rules and pace of work, and the managers push less hard. The sense of protest subsides; the conflict of ideologies is blunted.

Some Basic Rules

While the courses which nations follow toward industrialism may vary, the authors foresee some basic "rules" which will apply to all nations:

"The State That Does Not Withers Away. The state will be powerful. It will, at the minimum, have the responsibility in an industrial society for the rate of growth of the economy, the over-all distribution of income, the basic security of individuals, provision of essential public services . . . All of these

(Concluded on page 50)



Drawing by Walter H. Lorraine for the School of Industrial Management

Van de Graaff Electrostatic Generators

The prodigious feats of the first huge machines are exceeded by smaller accelerators now . . . in the world's great nuclear research laboratories and many of its finest hospitals and universities

BY J. J. ROWLANDS

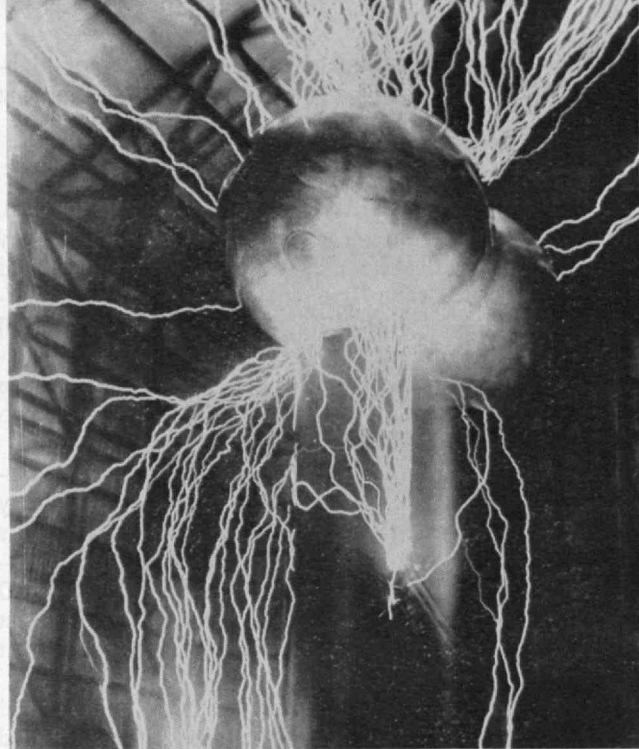
Editorial Associate of The Review

DURING a critical stage of World War I, Sir Ernest Rutherford was summoned to France for an emergency meeting on antisubmarine warfare. He begged a delay on the ground that he believed he was about to succeed in breaking the atom apart. Such a discovery, he was quoted as saying, might well be more important than the war itself. Although he failed in his original objective, he made a discovery of great importance when he drove protons from the nuclei of nitrogen, aluminum, and several other elements, and produced chemical transmutations.

Sir Ernest's triumph launched an intensive search for methods of attacking the citadel of the atom—its tiny, positively charged nucleus. Armed with laboratory weapons of various kinds and with only fragmentary knowledge of their prey, scientific hunters ranged far and wide on the trail of the agile and elusive nuclei. The searchers' only effective bullets were the energetic alpha particles spontaneously emitted by radioactive material. These alpha particles were few in number and lacked the speed and impact to penetrate the high-voltage cocoon enclosing the nuclei of the heavier atoms.

A call for a new weapon came in Rutherford's presidential address to the Royal Society in 1928 when he emphasized the urgent need for "a source of positive particles more energetic than those emitted from natural radioactive substances." Such a siege gun of science would have to deliver an abundant, reliable stream of nuclear-sized projectiles with energies sufficient to shatter nuclei. For precise studies the particles would have to be homogeneous, uniform in energy, and producible in a parallel beam with a minimum of stray radiation. Furthermore, it would be important to accurately measure and control over a broad range the voltage by which such particles were accelerated.

Guides were few and most of the pioneers following the dim trails of particles, the nature of which they could only guess, hewed their own paths in the atomic



The generator's great power was demonstrated in the 1930's.

wilderness. Among them was Chadwick of Cambridge, who discovered the neutron. Bothe, working in Germany about the same time, also found the trail of the neutron but mistook it for a photon. Cockcroft and Walton, armed with the first nuclear particles accelerated by a laboratory-size machine, achieved and demonstrated the transmutation of lithium into helium in 1932. Their projectiles were created by ionizing hydrogen and applying high voltages for acceleration. By then, the pace of discovery was quickening.

Van de Graaff and Compton

Robert J. Van de Graaff of Tuscaloosa, Ala., was graduated from the University of Alabama in 1923. He was 22, had completed the requirements for a bachelor of science and a master's degree in five years, and was still hungry. After a year of advanced study at the Sorbonne in France, he won a Rhodes scholarship and went on to Oxford University. Rutherford's atomic calls to arms echoed through the cool stone halls of the English universities and Van de Graaff's interest became all-consuming. In 1926 he was awarded the bachelor of science degree, and in 1928 his doctorate in philosophy. After another year at Oxford as an International Education Fellow, he went to the Palmer Physics Laboratory at Princeton as a National Research Fellow for two years.

During this period Van de Graaff was in regular communication with Karl T. Compton, then chairman of the Department of Physics at Princeton and about to become president of M.I.T. Dr. Van de Graaff clearly had joined the atom hunters, and in Compton he found a close personal friend as well as a staunch scientific colleague.

As early as 1930 Dr. Van de Graaff not only predicted the type of transmutation later achieved by Cockcroft and Walton, but calculated that the transmutation would result in an energy release of 17,000,000 electron volts, which subsequently proved to be

accurate. He was searching then for a source of high-voltage particles—the fast, hard-hitting projectiles that Rutherford had called for.

Electrostatic Principles

In 1799 Volta built the voltaic cell which, while useful, held no promise as a source of high voltages. Faraday discovered electromagnetic induction in 1831, and about the same time Joseph Henry discovered self-induction, marking the dawn of our present electrical age. At the beginning of the Twentieth Century, however, static electricity had become a subject of little more than historic interest to be revived from time to time as a parlor trick.

Concluding that the extremely high voltages required for atomic research could not be produced by batteries or electromagnetic methods, Van de Graaff's thinking turned back to the electrostatic principles—and the experiments of Thales of Miletus, who in 600 B.C. found that a bit of amber vigorously rubbed against other substances would attract feathers and other light materials.

Otto von Guericke, in 1663, devised an electrical machine made of globes of sulphur which rotated about an axis. Rubbing these globes separated electrical charges and produced a high voltage. Isaac Newton afterwards used a glass globe instead of sulphur. Ramsden, in 1768, constructed an electrical generating machine with a plate-glass disc rotating between two leather pads. Friction caused the glass to become positively charged while the pads were negatively charged; the charges were taken off and conducted to insulated terminals when the glass rotated between combs with very fine points.



Robert J. Van de Graaff (left) with President Karl Compton.

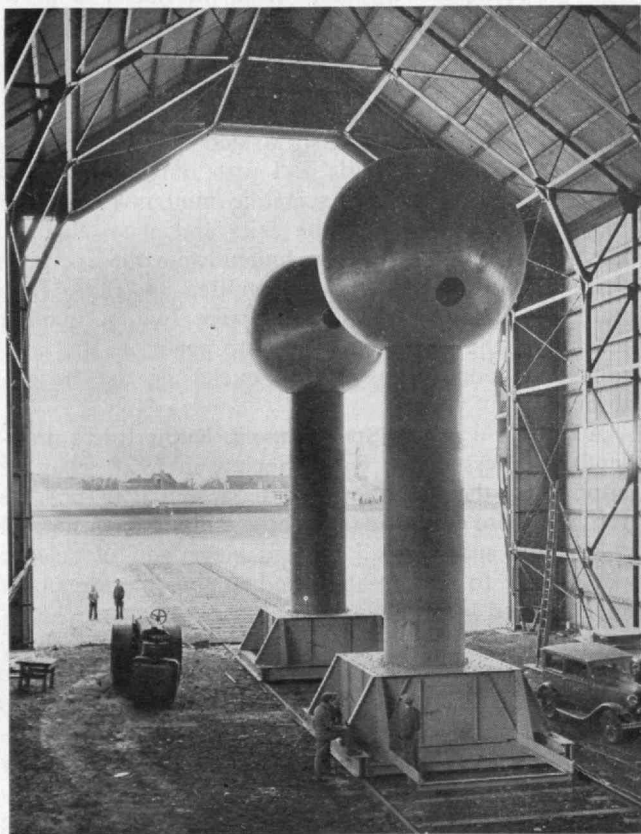
Lord Armstrong of Newcastle accidentally discovered another source of static electricity in 1841 when a jet of steam from a leaking boiler struck a piece of metal, giving him an electric shock. Lord Armstrong later built a steam electrostatic generator. Belli, Varley, Toepler, and Hertz also produced generating devices, and in 1872 Lord Kelvin built his Replenisher, a device with a rotating arm making contact with electrodes. Then, about 1878, came the Wimshurst machine, an instrument with glass discs rotating in opposite directions, which was long used in schoolrooms to demonstrate electrostatic principles.

The First Model

In static electricity Dr. Van de Graaff saw the promise of constant high voltage which he could not find in either the battery or electromagnetic generation. His first generator was based on the theory of Lord Kelvin's device, in which drops of water carrying small electrical charges fell into cups, where the charges accumulated as the drops continued to fall. But, instead of water, Van de Graaff used moving silk belts, carrying charges vertically, to be stored on a spherical metal terminal supported by an insulating column.

Dr. Van de Graaff built his first model of a direct-current electrostatic generator in the summer of 1929. The charges were sprayed on the belt at the base of the generator. The belt carried them upward and into the sphere where they were removed. This generator, made from tin cans and a silk ribbon, developed 80,000 volts.

A more elaborate model with terminal spheres two feet in diameter, standing on pyrex columns six feet high, was completed a few months later. Two such gen-



The Round Hill generator was set up in a dirigible hangar.

erators, one running positive and the other negative, developed over a million volts between their terminals.

This machine was first demonstrated in public on November 10, 1931, at a dinner of the newly organized American Institute of Physics in New York. There Karl Compton hailed Dr. Van de Graaff's machine as "the most important development that has ever taken place in the field of extremely high voltages." He saw the new generator as a siege gun for a major attack on the nuclei of atoms, and also forecast that the extremely high-voltage direct currents producing highly penetrating x-radiation would be of significant value in the treatment of deep-seated malignant disease.

The Round Hill Machine

The next step was construction of a huge Van de Graaff machine at Round Hill, the estate of the late Colonel E. H. R. Green, at South Dartmouth, near New Bedford, Mass. A building of extraordinary size was required, and Colonel Green made a dirigible hangar available to enclose two huge generators. The terminal aluminum spheres 15 feet in diameter were on cylindrical textolite columns 24 feet high, and the two generator units were mounted on rails 14 feet apart so that the distance between the terminals could be adjusted. Charges were deposited on the spheres by three paper belts, each three feet wide, running at a speed of almost a mile a minute.

The Round Hill generator developed more than 5,000,000 volts between its terminals, and Dr. Compton called attention to the machine's value by contrasting its output with that of radioactive sources.

The press was taken to Round Hill to see this giant on November 28, 1933. To show the high-voltage discharges, the machine was operated until the breakdown of open-air insulation produced spectacular discharges to the roof and walls of the building. These discharges, 15 to 20 feet long, Dr. Van de Graaff explained, would not occur under normal operating conditions, but they produced startling photographs.

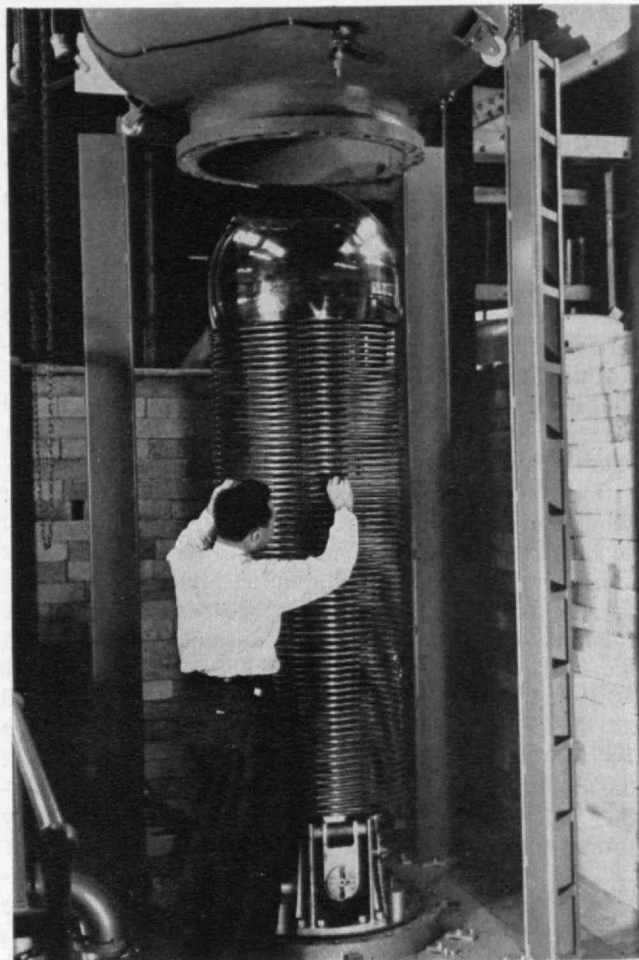
One newspaperman, with a better background in physics than his colleagues, asked permission to be placed in one of the huge terminal spheres while the machine was in operation. His associates watched in awe as he disappeared through the manhole at the base of the sphere. He saw none of the spectacular discharges but had a different story to tell.

Penetrating X-Rays

The Round Hill machine was dismantled later and moved to Cambridge, where it was housed in somewhat more compact quarters under a steel dome. It was used there for studies of the intricate structure of atomic nuclei for the next 20 years.

Early in the second World War, Dr. Van de Graaff and his associates applied the generator to the production of penetrating x-rays for the examination of heavy castings and other essentials of the military effort. The ability of megavolt x-rays to produce radiographs showing the internal structure of thick metal pieces was so great that the Institute was asked to construct five 2,000,000-volt x-ray machines, insulated in compressed air, for the Navy.

The particular physical properties of the penetrating x-rays produced at 2,000,000 volts have given medi-



A versatile, 3,000,000-volt machine now weighs only 9 tons.

cine a powerful and valuable instrument for the treatment of deep-seated malignant tumors. Precision control of the voltage and the diameter of the beam with an absence of scattering has made it possible to focus the beam on malignant tissue with far less damage to the sensitive skin and intervening tissue than would be the case with conventional x-rays.

Until the Van de Graaff generator was developed, the highest steady voltage ever produced was 800,000 volts. The present generators capable of producing several million volts require evacuated tubes of special design to apply such high voltages to the acceleration of electrified particles. High evacuation is necessary to avoid energy-dissipating collisions with molecules of gas in their passage through the tube. The design of a tube of this type requires that the field along the insulating walls of the tube be controlled and that the walls be sheltered from stray ions that might result in flashover or puncture. Such tubes, evacuated to the highest possible degree, provide an environment in which charged particles of specific types can be accelerated to high energy and sent out of the tube in parallel paths in a beam of small diameter.

Reductions in Size

For the Huntington Memorial Hospital in Boston, Dr. Van de Graaff and John G. Trump, '33, built a machine, operating at more than a million volts in atmospheric air, with which the first patient was treated early in 1937. This machine occupied a room only about 25

feet square, and produced the first megavolt x-rays for therapy in the New England area.

Early in the development of the electrostatic generator, however, it became apparent that both voltage and current, as well as power output, could be increased by placing the generator in an insulating medium better than air at atmospheric pressure. In a paper on high voltage in 1933, Dr. Compton noted that a generator operating in a tank of gas at 30 atmospheres of pressure should, in theory, produce 30 times the voltage, 30 times the current, and 900 times the power that could be developed in open air. While Dr. Van de Graaff was working on his second generator, a colleague at Princeton, Henry A. Barton (who went on to a distinguished career with the American Physical Society), built a small generator to operate in compressed gas.

This procedure has been a major factor in designing small and highly efficient Van de Graaff electrostatic generators. The second medical x-ray generator—far more compact than the Huntington Memorial machine, since it was insulated in compressed gas—was built for the Massachusetts General Hospital under a grant from the Godfrey M. Hyams Trust. This machine was only 50 inches high, the terminal and tank diameters 24 and 34 inches, respectively, and it operated with a single 14-inch belt. It went into operation in April, 1940, at the George Robert White Building. Operating at 1,250,000 volts, it was for a time the only megavolt x-ray source for therapy in New England.

The next compressed-gas-insulated machine for therapy, operating at 1,750,000 volts, was built for the American Oncologic Hospital in Philadelphia. It was requisitioned by the U.S. Army for radiation-damage studies as part of the bomb program at the University of Chicago. A replacement x-ray generator built for the Oncologic Hospital is still in use. This machine was the prototype of the 2,000,000-volt medical x-ray generators which, with a number of refinements, now are in more than 40 hospitals throughout the world.

World-Wide Usage

It is estimated that more than 800 patients are treated daily with the radiation these machines provide. The Van de Graaffs produce penetrating electromagnetic radiation physically and biologically equivalent to the gamma rays of radium. The rays from a single machine, however, have an output intensity twice that of the world's supply of radium.

A comparison of the Round Hill generator as it was reassembled in Cambridge with modern 2,000,000-volt machines dramatizes the reduction in size resulting from use of gases under pressure for insulation. The volume of the pressure tank of a modern machine is less than one-thousandth that of the steel building that enclosed the Round Hill machine, and a single belt six inches wide nowadays carries nearly the same current as the early machine's three-yard-wide belts.

A compressed gas generator that operates in the 10,000,000-volt range was completed at M.I.T. in 1952, and has proven especially valuable for fundamental nuclear studies. William W. Buechner, '35, directs the research program in which it is used.

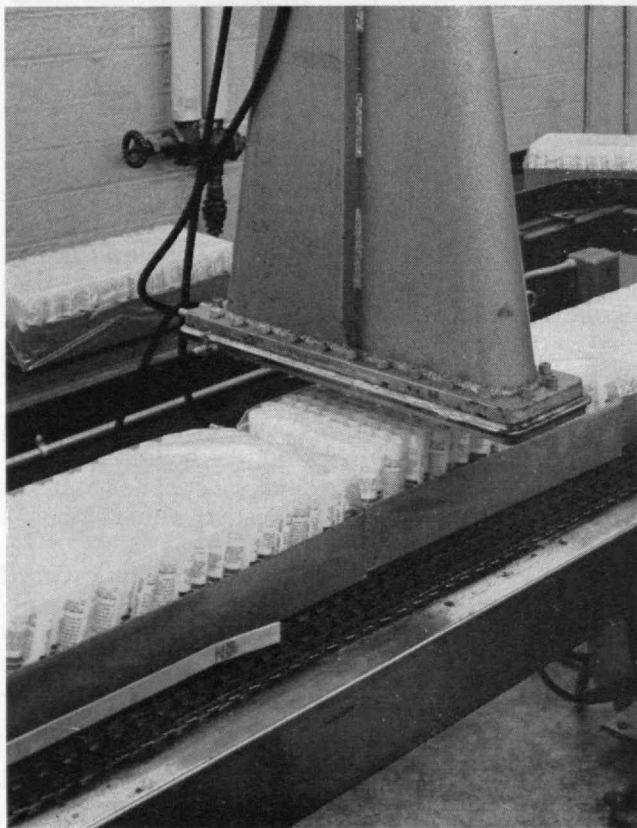
The demand for the Van de Graaff generator for nuclear research long ago outgrew the capacity and purpose of the M.I.T. laboratory in which it was developed.

With a group of colleagues, Dr. Van de Graaff and Dr. Trump formed the High Voltage Engineering Corporation in 1947. It has installed more than 160 accelerators in universities, national nuclear laboratories, hospitals, and chemical research plants throughout the world.

The particles used as projectiles in great accelerators gain their energy either by repeated application of small voltages or the single application of a constant voltage, as in the Van de Graaff generator. Although the latter has distinct advantages in precision, and beam intensity and flexibility, it has been limited to relatively low-particle energies because of the single application of the voltage to speed the particles on their way. Recent developments, however, have shown that the principle of tandem acceleration can be employed to apply voltage two, three, or even four times to accelerate the ions, and thus increase the positive-ion output energy.

In tandem acceleration the output energy for medium-weight particles is increased manifold by stripping electrons from the ion beam. Machines of this type have been delivered to several of the world's famous atomic research laboratories. The High Voltage Engineering Corporation is building a 100-million electron volt, 40-kilowatt, microwave linear accelerator for the Bureau of Standards now.

In 1959, High Voltage Engineering and the B. F. Goodrich Company formed a jointly owned subsidiary called Goodrich-High Voltage Astronautics, Inc., which is interested in the development of advanced propulsion systems and methods of power conversion for the exploration of outer space. It may well be that, when man conquers space, vehicles equipped with machinery employing the principle of the Van de Graaff generator will soar from the earth into galactic space.



Van de Graaff radiation processing improves many materials.

Books

ADVENTURES IN ALGEBRA, by Norman A. Crowder and Grace C. Martin, and **THE ARITHMETIC OF COMPUTERS**, by Norman A. Crowder (two "Tutor-Texts" published by Doubleday & Company, each \$3.95). Reviewed by Philip Franklin, Professor of Mathematics at M.I.T., in the same manner in which both books were written.

1. Like the newly developed teaching machines, each of these books is an automatic teaching tool. The format is aimed to insure that an attentive and conscientious reader who follows instructions and reaches the last page will necessarily have a considerable understanding of the subject treated.

To this end, information is offered in small units. At the end of most units there is a question, with several suggested answers. A direction as to which item of the book is to be read next is given with each answer. By choosing a particular answer as best in his opinion, the reader automatically selects what he reads next, and thus sequentially determines his progress through the book. *To illustrate the format of the books, the sections of this review are numbered. They are not necessarily to be read in consecutive order, but rather in accord with the directions given at the end of most sections. Please follow that direction which corresponds to the answer you select.*

Which of the following statements best represents your reaction to automatic teaching methods?

- (a) I have no interest. (Stop reading this review, and turn to some other item in this magazine)
- (b) I have some interest. (Read section 3 next)
- (c) My interest has already led me to read the two books under review. (Read section 5 next)
- (d) I am interested. I am familiar with Crowder's TutorText method, but not with the contents of the two books under review. (Read section 4 next)

☆☆☆

2. You did not follow the instruction corresponding to your answer to the question at the end of Section 1. Please reread the emphatic admonition given before this question.

☆☆☆

3. The object of the special arrangement of material, questions, and directions of these texts is to set up a course of reading individually programmed for each student by his choice of answers. The questions are designed to test his grasp of the item discussed. A best answer shows that he is prepared to start a new unit, and he is so directed. An incomplete answer, or one obtained by a misunderstanding or an illegitimate procedure, leads to an item explaining why the answer was incorrect or incomplete, and then referring the reader back to the original question for a second try.

Some wrong answers show that the reader has forgotten or ignored definitions of terms or symbols given earlier, and the reader is advised to reread these.

Thus when the reader grasps the point at once, he skips much irrelevant (to him) further explanation and elaboration. But the slower learner, or less attentive reader, will find profitable the explanations of common errors and the rereading of definitions which are called to his attention when he needs them.

Is it intended that the user of these texts should read all the material in consecutive order?

- (a) No. (Read section 4 next)
- (b) Yes. (Reread section 3 with closer attention, and then choose the other answer)

☆☆☆

4. "Adventures in Algebra" deals with elementary algebra. The nature of numbers is stressed, and much technique is carefully explained. Such topics as prime numbers and mathematical induction are included, and presented in terms accessible to readers with very modest mathematical preparation. These topics should add to the interest of adults using the book to refresh their school algebra. The book should prove useful to school children beginning algebra as a supplement to their school work. And their parents, who remember how to use algebra but do not recall how one starts the subject, may be helped by this book.

"The Arithmetic of Computers" reviews decimal arithmetic, and then treats octal and binary arithmetic. Thus it proceeds from an analysis of the use of ten as a base, to an arbitrary base, and in particular the use of eight as a base and then two as a base. Some details of the treatment of signed binary numbers by digital computers are explained in the last quarter of the book. (Read section 5 next)

☆☆☆

5. Both books give greater emphasis to reasoning and a grasp of principles than was customary in older school books. They include some topics under consideration for a place in recently revised mathematics curricula. Unlike many teaching machine sequences, they do not overemphasize drill. For mature readers with average self control, or immature readers with very little advice and supervision, books of this type should be an inexpensive alternative to teaching machines, having many of the advantages of a teaching machine sequence.

In these two books the programming idea is carried out with great technical skill. The breezy comments, compliments, and scoldings with occasional humor or satire make it easy for the reader to imagine that he is being talked to by a teacher. The choice of material for these books demonstrates that the writers are well versed not only in algebra and arithmetic as elementary subjects, but also in their foundations, applications, and connection with advanced mathematical topics. And the multiple-choice questions and answers, as well as the remedial items to which one is led by choosing a distractor, indicates that the authors have had sufficient experience in personal teaching of these subjects to be familiar with most of the mistakes commonly made by beginners.

DIGITAL COMPUTER FUNDAMENTALS, by Thomas C. Bartee, of M.I.T. Lincoln Laboratory; McGraw Hill Book Company (\$6.50). Reviewed by F. J. Corbato, '56, Associate Director of M.I.T. Computation Center.

COMPUTATION by high-speed computers is rapidly growing and there is still a shortage of explanatory books. As computers have a larger and larger effect and impact on contemporary life, it is encouraging that books are appearing which bridge the gap between the research laboratories and the intelligent layman.

Advances have been so rapid in computing that already there are two groups of specialists. One group, the designers and builders, is concerned primarily with "hardware." This group continually strives for clever circuits, faster switching, cheaper memory devices, reliability, and generally faster techniques.

The other group, the system programmers, have become primarily concerned with the utilization of digital computers. Fundamentally digital computers perform logical operations such as adding, subtracting, comparing, skipping an instruction if the result is negative, etc. In principle, it is fairly obvious that exceedingly complex sets of instructions called programs can be devised to accomplish any well-specified task. In practice, however, it has been found that straightforwardly preparing these basic machine instructions is hopelessly tedious and time consuming. As impressive as computer applications have been they are still limited by programming clumsiness. In the past few years programming techniques have begun to evolve using new programming languages that are more succinct and potent than the previous ones. The general problems of designing these languages and developing the corresponding translators to the fundamental machine language form an active area of current programming research.

Science Fiction at M.I.T.

HUGO GERNSBACK, a man with both an abundance of reminiscences and a mission, was a guest last fall of the M.I.T. students' Science Fiction Society. Many Alumni will recall his name as that of the publisher of *Radio-Electronics* and author of *Ralph 124C 41+*. Mr. Gernsback regaled the young men in his audience with stories of Nicola Tesla's pigeons and told them, too, about the "Westing Mouse vest-pocket radio" for which he himself received 2,000 orders at a time when no such thing existed. But he also pointed out that the Russians have discovered science fiction only recently, and he pleaded seriously for a renaissance in this art in this country.

Today's outstanding authors of "scientifiction," said Mr. Gernsback, are: Dr. Arthur C. Clarke, Dr. Isaac Azimov, Robert A. Heinlein, A. E. van Vogt, Clifford D. Simak, Theodore Sturgeon, and Hal Clement. But, he insisted, science fiction is "the domain of youth," and the M.I.T. Science Fiction Society "could easily become the leader of an important new movement in science fiction."

At the right, Mr. Gernsback is shown autographing a book for Anthony R. Lewis, '61.

The present book is primarily a description of computers written from the "hardware" point of view. Chapter 1, *Computer Operations*, is concerned with a brief historical summary and a few examples of applications that serve to motivate the usefulness of a computer. Chapter 2, *Programming*, is also brief, but it is a clearly written, short description of the fundamental ideas of programming. Chapter 3, *Number Systems*, introduces the notion of different representations of numbers and particularly, binary, binary-coded decimal, one's complementing and two's complementing.

The first three chapters are a fundamental introduction. Chapter 4, *Basic Logical Circuits*, is directed not only at the casual reader but at the serious student as well. OR-gates, AND-gates, inverters, flip-flops, binary counters, the race-problem, and other related topics are developed using transistor circuits. (It is a measure of the thinking in the computer world that vacuum tubes are beginning to be treated as obsolete equipment!) Chapter 5, *Logic Design*, gives a straightforward application-oriented presentation of Boolean algebra along with DeMorgan's Theorem and other manipulation principles for developing the necessary switching circuits of computers.

The remaining chapters cover the design of the key computer sections. Chapter 6, *The Arithmetic Element*, is an extended treatment of this vital part of the computer. As the author points out, "arithmetic element" has become almost a misnomer and the term "logical element" would be a better description. Chapter 7, *Memory Element*, discusses the basic features of core memories as well as magnetic drums, tapes and discs. Chapter 8, *Input-Output Devices*, is a survey of the common tape and card readers, printers, cathode-ray tube output, and other similar devices. Chapter 9, *The Control Element*, discusses the execution of typical operations and how various complexities such as floating-point arithmetic are handled.



BUSINESS IN MOTION

To our Colleagues in American Business . . .

The extruded copper section sketched below is used in a low-voltage circuit breaker made by one of the country's leading electrical equipment manufacturers.

Originally it was two extrusions brazed together as shown by dotted line. However, it was reasoned, if it could be made as a single extrusion a number of operations would be saved. At first that procedure appeared to be impractical in a copper extrusion as intricate and heavy as this (piece of it only $3\frac{7}{16}$ " long, measuring $4\frac{1}{4}$ " x $4\frac{7}{8}$ ", weighs eight pounds, seven ounces). But the possibility was believed to be worth investigating.

Through close collaboration between the manufacturer's engineering department and the Revere Methods and Production Departments, it was found possible to combine these two sections into a single extrusion. Work was started, dies were made and test runs conducted. The tooling (for hot extrusion was followed by cold drawing) also posed some special problems. It had to be both rugged and precise in order to produce this monster extrusion to the

manufacturer's exacting specification requirements.

Finally, a sample extrusion was delivered to the customer for testing and found to be right in every way.

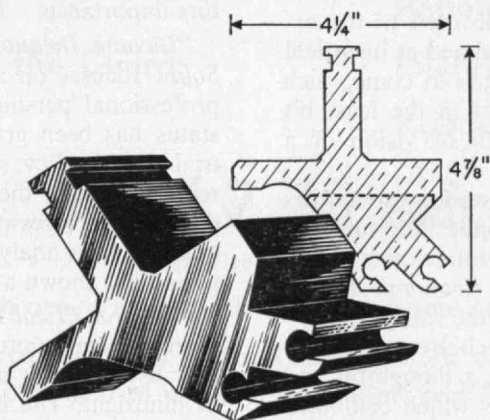
Not only does this Revere Copper Extrusion eliminate much costly machining in the customer's plant, but it obviates the need to purchase separate extrusions and braze them together. An extra benefit was

gained in the form of longer life for the new extrusion, because the heat required to join the two pieces used originally had tended to soften the built-up unit and thus shortened its useful life.

So, while some problems may seem virtually insoluble at first, why not explore the

possibilities by doing as this leading manufacturer did . . . call on the Revere Technical Advisory Service? In that way, by "fitting the metal to the job," Revere may be able to help you to cut costs, produce a superior product, or both.

In fact, it generally pays to adopt that principle with all suppliers—take them into your confidence; thus add their abilities and experience to your own.



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POSTWAR ECONOMIC TRENDS IN THE UNITED STATES, Edited by Ralph E. Freeman, Professor of Economics, Emeritus, M.I.T. (Harper & Bros., \$6). Reviewed by David S. Greenlaw, '57 Sloan Fellow, of Eastman Kodak Company, Rochester.

FROM time to time an economist writes a book. Quite often these volumes represent contributions to the literature. They are read mostly by other economists. If, by chance, a businessman, engineer, or industrial manager wanders very far into one of these books he may become frustrated, a little annoyed, and eager to return to familiar if not solid ground. Books by economists for economists are necessary. They are rarely useful for the moderately informed, active, industrial, professional person.

Frequently, too, an economist writes a book for broad public consumption. Many times in recent years these books have been persuasive, incisive, and devoted to the exposition of a point of view. Whether aimed at historical perspective or the forecasting of events to come, such books are usually free from data, not in the least bit technical, and limited to the breadth of vision of a single person.

Between the textbook by economists for economists and its counterpart in popular economic literature lies a wide valley. In this valley most professional industrial people spend their lives. *Postwar Economic Trends in the United States* is for the people in the valley.

The book contains ten essays, each by a different author or author team. Each essay is a thoughtful and provocative analysis of certain factors which combined to produce the economic development of the United States after World War II. Each of the essays is strengthened by the presentation of data and facts prior to the analyses.

Each author knows the others on more than a casual or "conference" basis. The authors are or have been associated in the Department of Economics and Social Science and the Center for International Studies at M.I.T. Many of the arguments presented have been tested, reworked, strengthened, and developed during the building of a great center and a great department.

A synergistic effect results from crossing and weaving the threads of individual thought arising from different backgrounds of scholarship and interest. The result is a single fabric of inquiry—coherent, scholarly, and readable. Here is no flip book hastily put together. It urges the reader to think carefully and read thoroughly. The book assumes a grasp of something like first and second-year economics plus an interest in the subject. Armed with some basic concepts, the reader is not likely to be overwhelmed.

Listing the authors and the subjects of their essays should elicit a curiosity on the part of many potential readers who have been so busy with daily problems

that they haven't read anything very serious in the field of economics.

"*The Dynamics of American Society*" by W. W. Rostow deals with the changes in American domestic life including the domestic crisis of 1956-1958. Professor Rostow delineates new forces at work in the 1960's which offer arguments for both affluence and austerity for the future. The changing goals of the American economy are developed after pointing out the social forces that have shaped this change.

"*American Economics*" by Paul A. Samuelson begins with early American economics and recalls some of the first American writers in this field. Professor Samuelson spells out the development, in the United States, of a competence in the technology and science of modern economics. From this newly evolved capability within the United States comes the recognition of some problems.

"*Postwar Monetary Policy*" by Ralph E. Freeman begins with the economic heritage of war and depression, and outlines step by step the action of the U.S. Government through the several changes in monetary policy. Professor Freeman reconstructs the situation and forces which placed monetary policy in eclipse. He then describes the factors responsible for a revival in monetary policy and offers a judgment of its future importance.

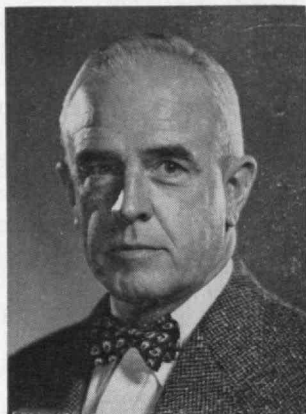
"*Income Inequality Since the War*" by Robert M. Solow focuses on a subject dear to the heart of every professional person who now feels that his economic status has been gradually eroded by taxes and industrial wage policy so that no differentiation in income remains among the widely diverse contributions of individuals. Professor Solow carefully documents his arguments to analyze the degree to which the postwar period has shown a redistribution of income.

"*Federal Fiscal Policy in the Postwar Period*" by E. Cary Brown carefully picks apart and delineates federal fiscal policy as viewed with the specular clarity of hindsight. The effectiveness of fiscal policy in dealing with the postwar inflation, the recessions of 1948 and 1957, and the inflationary periods is carefully reviewed. In the background are questions regarding what was actually done and what might have been done.

"*Continuity in Change in American Labor Problems*" by Abraham J. Siegel and Charles A. Myers. The executive dining rooms of most American industries have from time to time echoed with the sterling thought that inflation and arrested economic growth have been caused by an avaricious labor movement whose irresponsibility is deplorable. Professors Siegel and Myers carefully review American labor problems in the recent past and offer a look ahead for the 1960's.

"*Development, Diversification, and Decentralization*" by Alfred D. Chandler, Jr. The evolution of a new pattern of competition among firms in different industries making the same product is discussed and described. The implication of the modern diversification in multi-industry activities which has altered the older patterns of business competition is carefully set forth for the major industry groups firm by firm. Here is a careful restatement of the position to which firms have evolved during the postwar period, which

(Continued on page 42)



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Books

(Continued from page 40)

is different from the stereotyped pattern carried by many of us.

"Some Aspects of Corporate Enterprise" by M. A. Adelman develops the analysis and argument that during the postwar period a polarization of capital and labor, and the size and fewness of firms, have made corporations politically weaker rather than stronger.

"A Decade of Corporate Capital Investment: 1946-1955" by Eli Shapiro and Morris Mendelson. In this period under review, the United States corporations managed the greatest absolute level of capital growth that has ever been experienced in the country. The manner in which this growth was financed, and its result in terms of the condition in which corporations found themselves after the expansion had been completed, are carefully analyzed and set forth. An abundance of charts and data assist in describing what well may be a modern economic miracle.

"International Trade and United States Experience" by Charles P. Kindleberger is quite properly the last essay. It turns attention to the position of the United States in foreign trade. Here Professor Kindleberger follows the well-worn trail of the model of comparative advantage as far as it will go, but then does not hesitate to strike off on his own to describe the experience of several major industries in the field of world competition. Tariff history and suggested cause-and-effect relationships are spelled out.

At the end of each chapter in the book there are notes and references which should lead the interested and competent inquirer to a busy winter of economic study and review.

It is almost as if Ralph Freeman had worked hard to bring together men of independent yet complementary and competent scholarship and had asked them to write a book. With several authors, each specializing in his own field of comparative advantages, the book gives an insight into the subject which is deeper, broader, and clearer than would be obtained if the reader studied the scholarship of any one author. Perhaps it is no coincidence that the book produces this impression. It is precisely from this background that the book has come. Ralph Freeman was the head of the Department of Economics during its formative years and has had more than a little to do with assembling an academic team whose strengths are complementary and whose scholarship individually and in the aggregate is competent. Ralph Freeman's team wrote the book.

DYNAMIC PROGRAMMING AND MARKOV PROCESSES, by Ronald A. Howard, '55; The Technology Press of M.I.T. and John Wiley and Sons, Inc. (\$5.75). Reviewed by Thomas C. Bartee, Lincoln Laboratory, M.I.T.

THIS MONOGRAPH presents an introduction to two subjects in the field of operations research: dynamic programming and Markov processes. The volume is slim (136 pages), but the pace is lively, and the book covers considerable material. Further, the presentation is

(Concluded on page 44)



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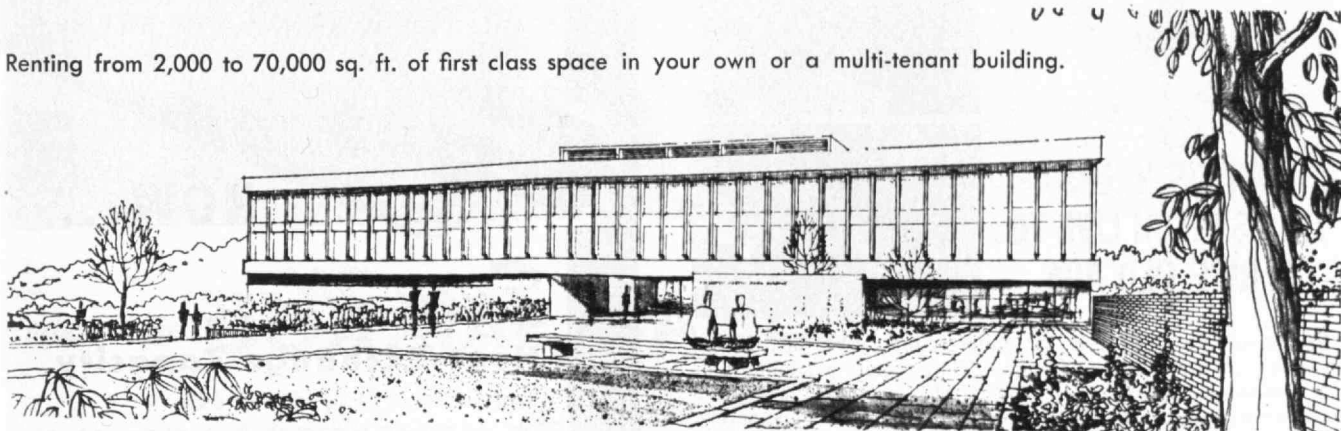
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Books

(Concluded from page 42)

very clear and may be easily followed by readers with no prior knowledge of the field. At the same time the book should be of value to those interested in the use of Markov processes as system models, for both dynamic programming and Markovian models are sufficiently recent subjects that an introductory book can present original and novel material.

The subject matter for the book was taken from an Sc.D. thesis in Electrical Engineering, and is also based on work done at the M.I.T. Computation Center and the M.I.T. Research Laboratory of Electronics. The basic problem is that of analyzing a system which can be considered to be in one of a finite number of states at a given time, and for which conditional probabilities may be assigned to each of the possible transitions from state-to-state. After explaining an analysis technique based on use of the z-transform, the author describes Markov processes with rewards, considering rewards assigned to states and state transitions in various ways. The decision problem is then introduced, where the operators of the system are offered several courses of action, and the choice of policy (strategy) will change the transitions probabilities and rewards governing the process. Two computational schemes for determining an optimal policy are then presented. The first, *value iteration*, appears more desirable for short-duration processes, and the second, *policy iteration*, better for long-term (continuous-time) processes.

Professor Howard has made excellent use of the tech-



A NEW COMPUTER, an IBM 1620, a small, solid-state machine with a magnetic core memory, has been installed in the Civil Engineering Computer Laboratory. Frank L. Silly, '64, helps Professor Charles L. Miller, '51, use it.

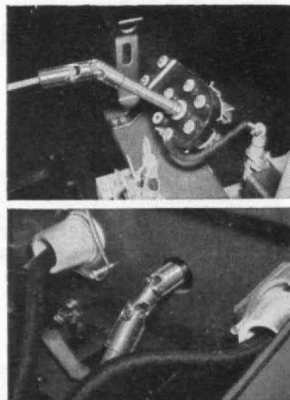
nique of explaining new ideas by means of illustrations. The reader of this book will find himself guided through the use of z-transforms in analyzing discrete Markov processes by means of a problem confronting a toy-maker, and introduced to policy iteration via a problem in strategy confronting a baseball manager.

Because of the straightforward approach, a surprising amount of material concerning the use of mathematical models and dynamic programming in the solution of sequential problems is presented.

This book may be very profitably read by those in the operations research field, and will impart a surprising amount of useful theory, painlessly acquired, to all interested readers.



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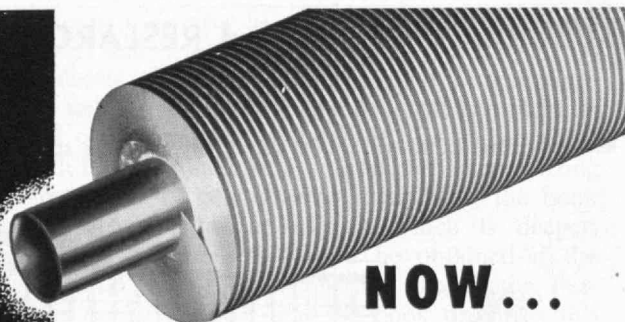
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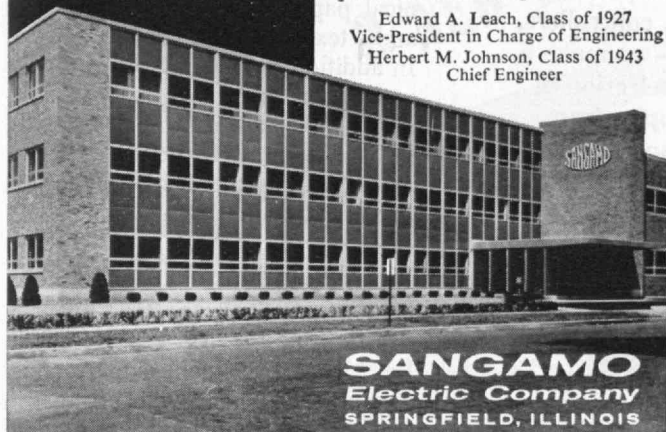
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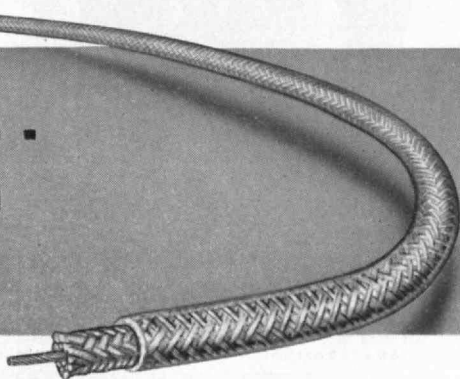
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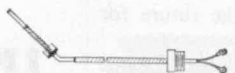
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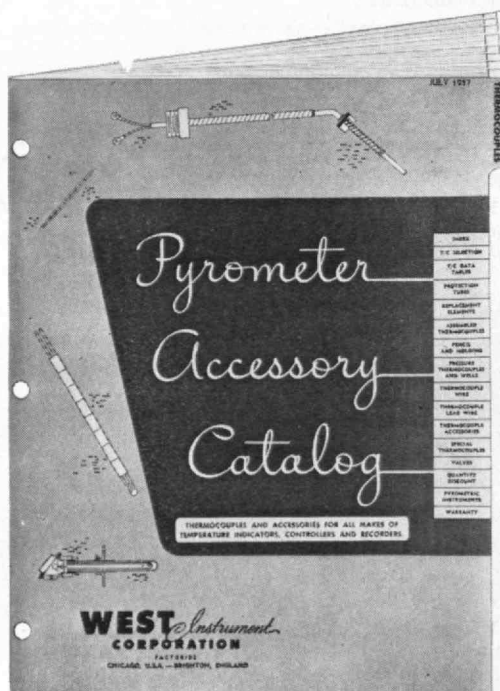
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Individuals Noteworthy

(Concluded from page 8)

Visiting Professor

FRED W. BILLMEYER, JR., senior research chemist in the Polychemicals Department of E. I. du Pont de Nemours & Co., Inc., is a visiting professor this term in the M.I.T. Department of Chemical Engineering.

A graduate of California Institute of Technology, he received his doctorate from Cornell, and has been with the Du Pont Company since 1945. He is the author of many technical papers on polymer chemistry and a textbook which is widely used. In addition to teaching this term, he is helping Professors Alan S. Michaels, '44, and Edward W. Merrill, '47, who are developing a new course which the Department will offer next term.

New Neighbors

L. DENNIS SHAPIRO, '55, heads a new firm, Aerospace Research, Inc., at 90 Massachusetts Avenue, Cambridge, which will engage in research and development in radio propagation and ionospheric physics. Robert B. Craven, '55, is in charge of instrumentation, and Melvin M. Weiner, '55, is a member of a staff consultant advisory group.

William E. Barbour, Jr., '33, is president of another new corporation, Magnion, Inc., located at 195 Albany Street, opposite M.I.T.'s new Magnet Laboratory. It expects to engage in research and development of magnetic systems and products.

Fellows From Abroad

THE SCHOOL for Advanced Study now has 10 Sloan Foreign Post-Doctoral Fellows working in eight M.I.T. Departments. They are:

Robert Blinc, Chemistry, from Yugoslavia; *Fausto Calderazzo*, Chemistry, from Italy; *Y. B. Damle*, Economics, from India; *Karl Fischer*, Crystallography, from Germany; *Allan E. Mitchell*, Mechanical Engineering, from England; *Kazuo Noda*, Industrial Management, from Japan; *Toru Ogawa*, Physics, from Japan; *Clive H. Perry*, Mechanical Engineering, from England; *Hiroshi Tanaka*, Mathematics, from Japan; and *Herta von Dechend*, Humanities, from Germany.

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Institute Yesteryears

(Concluded from page 24)

read, showing a balance on hand January 1, 1886, of \$59.83. The report of the trustees of the Alumni Fund was read and accepted, the report showing the amount at hand to be \$1,133.27. . . . The annual election of officers was then held, and the following were elected to the offices indicated: Howard A. Carson, '69, President; Henry M. Howe, '71, Vice-president; George F. Swain, '77, Secretary. . . ."

¶ The Editor of *The Tech* took notice of the approaching end of the first semester, and entered a plea on behalf of "cramming," to wit:

"The much-dreaded semi-annuals are now at hand, and the traditional midnight oil and wet towels are in order. 'Cramming' is almost universally considered, by those who do not have to do it, as not only injurious to health, but also an illegitimate method of getting a good standing.

"When one writes home how hard he is 'grinding' during the examinations, how late he is sitting up at night, and other tales of woe, paterfamilias will probably reply that he sees no reason why he need be obliged to study so excessively before the examinations if he had given sufficient attention to the subjects when he first went over them, together with other remarks of like nature. This seems to be a popular impression among those who do not know anything about it. . . ."

"While a long period of habitual midnight study would soon undermine a man's health, a few days of it, with an interval of rest afterward, will not seriously

harm anyone of good average constitution. We might even go so far as to say, that there are certain advantages to be derived from it. . . ."

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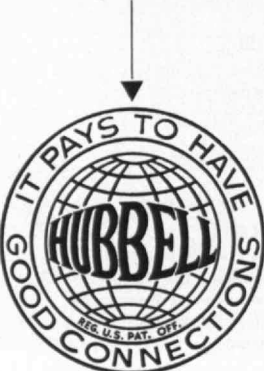
"It trains the mind to open itself, as it were, and take in a very great deal at once, and to be accustomed to so doing . . ."

¶ And, in an adjoining column of *The Tech*, appeared this notice: "It is said that the issue of free railroad passes is a source of corruption among State legislators. If any Instructor will give us a free pass on Railroads, Applied Mechanics, and one or two other little things, we will corrupt him to any desired extent."

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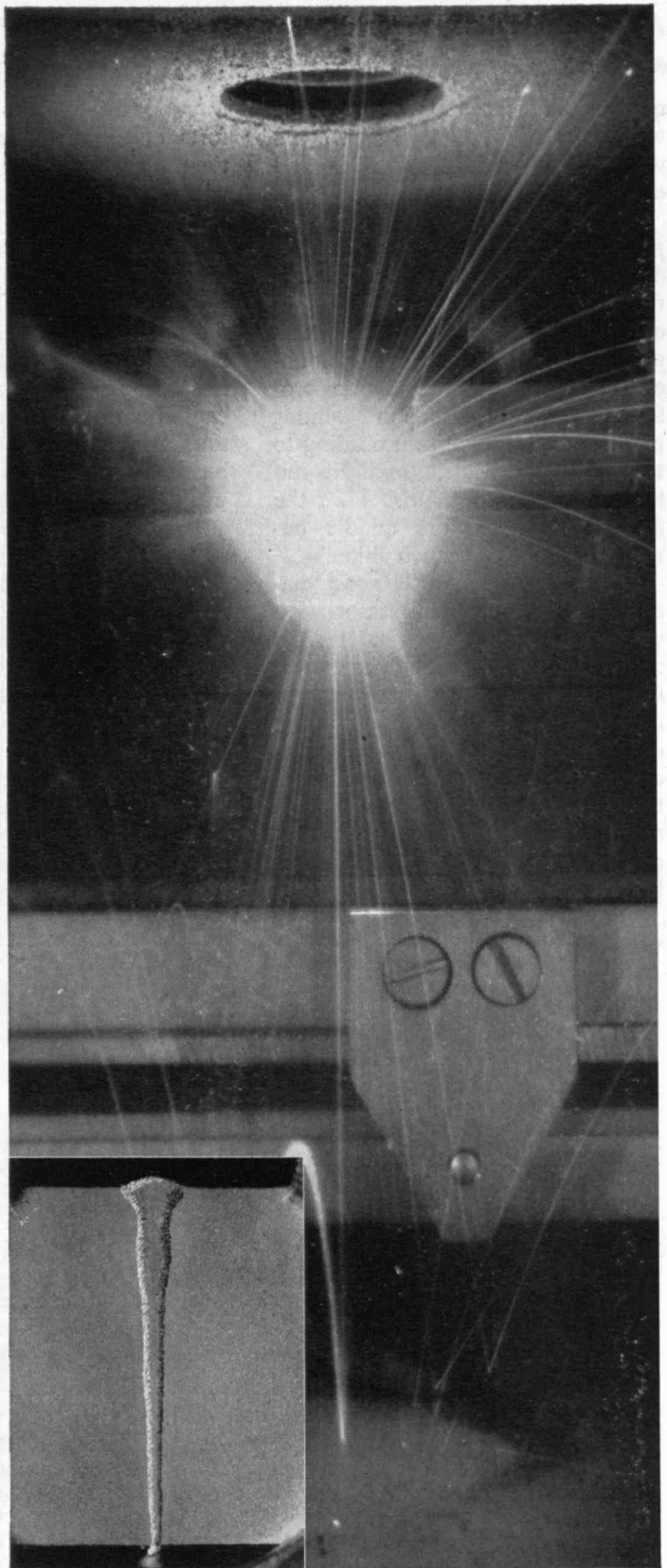
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An Industrialized World

(Concluded from page 32)

responsibilities mean that the state will never 'wither away': that Marx was more utopian than the despised utopians."

"*The Crucial Role of the Enterprise—The Middle Class and the Middle Bureaucracy.* The productive enterprise under pluralistic industrialism will be in a dominant position . . . the managers, whether public or private, will be professionals . . . distinction among managers will be more according to the size, the product, and the nature of their enterprise . . . the middle class and the middle bureaucracy will look much alike."

"*Associated Man.* The occupational or professional association will range alongside the state and the enterprise as a locus of power in pluralistic industrialism . . . class warfare will be forgotten and in its place will be the bureaucratic contest of interest group against interest group. The battles will be in the corridors instead of the streets, and memos will flow instead of blood."

"*The Web of Rules.* Uniting these organizations—the state, the enterprise, the association—will be a great web of rules set by the efforts of all the elements but particularly the state . . . the web will not equally cover all aspects of life."

"*From Class War to Bureaucratic Gamesmanship.* Persuasion, pressure and manipulation will take the place of face-to-face combat of an earlier age . . . Conflict will be less between the broad programs of capital and labor, and of agriculture and industry; and more over budgets, rates of compensation, work norms, job assignments."

"*From Class Movement to Special Interest Group.* The day of ideological labor movements as we have known them will have passed . . . Labor organizations will take the craft or the occupational form . . . the professional organization may become the most common kind of organization like those of doctors, lawyers, teachers, nurses, airline pilots in many countries already . . . generally these occupational and professional organizations will be a conservative force in

the society."

"*Organization Man and the New Bohemianism.* The individual will be in a mixed situation . . . in his working life he will be subject to great conformity imposed not only by the enterprise manager but also by the state and by his own occupational association. . . .

"The economic system may be highly ordered and the political system barren ideologically; but the social and recreational and cultural aspects of life diverse . . .

"Utopia never arrives, but men may well settle for the benefits of a greater scope for freedom in their personal lives at the cost of considerable conformity in their working lives.

"Pluralistic industrialism will never reach a final equilibrium. The contest between the forces for conformity and for diversity will give it life and movement and change . . . these threads of conflict will continue when class war, and the contest over private versus public initiative, and the battle between monistic and atomistic ideologies have been left far behind in the sedimentary layers of history."

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SUN LIFE ASSURANCE COMPANY OF CANADA is pleased to announce that the initial response to its Values in Education series has been more than gratifying. Hundreds of thousands of booklets have been distributed on request to all parts of the United States and Canada. These booklets, which are still available, deal with the advisability of remaining in school; existing scholarships and student loan programs; trade and industrial schools; school boards and their functions, and sports tips for teen-agers. Bulk shipments can be made to educators for distribution in schools.

Sun Life is now offering a further series of booklets in its Values in Education series. 'How to Get More Fun out of School' is directed to the young teen-ager. It is hoped that 'The Value of a College Education' and 'Why Study the Humanities?' will encourage young men and women to attend university and help them in their search for their proper vocation. Two booklets have been prepared for adults—'Adult Education Today' and 'Educating Yourself for Retirement.'

Sun Life hopes sincerely that these booklets, and others to be issued in the future, will act as a stimulant on young people and at the same time prove helpful to parents and educators alike in the performance of their duties. Sun Life will be glad to consider any suggestions concerning topics for future booklets.

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Walloping the Atmosphere

(Concluded from page 27)

dars equipped with extensive facilities for data processing and recording can pinpoint the five-inch sphere more than 200 miles away. These are being backed up by optical devices, including meteor cameras, a Schmidt spectrographic camera, and ultimately a 48-inch spectrometric telescope. Still more measurements are being provided by the radar equipment at Lincoln's Millstone Hill site near Bedford, Mass.

Lincoln Laboratory's theoretical and experimental research guides this field work. The former includes investigations of the shock phenomena that occur when a vehicle with hypervelocity enters and travels through the earth's atmosphere, the electronic characteristics of the plasma sheath that is formed and left in the wake of the vehicle, and techniques for determining the flow field with electromagnetic probes. In laboratory set-ups preliminary to the field work small projectiles are fired at re-entry velocities up to nearly five miles a second. This is done in ballistics facilities both at NASA's Ames Research Center and at Lincoln Laboratory.

The work is sponsored by the Advanced Research Projects Agency under a contract with the U.S. Air Force.

NEXT MONTH in The Review, Professor Douglas McGregor will discuss far-reaching changes in the strategy of management necessitated by the growth of science, industry's increasing complexity, and the changing composition of its working force.

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and the prophet replied:

*"It is well to give when asked, but it is
better to give unasked, through understanding."**

Gifts by Will

TO THE

Massachusetts Institute of Technology

The tale is told of Almustafa, the prophet, who, having awaited for many years the ship that would return him to the place from whence he came, was making the final descent to the shore when the folk of Orphalese crowded about him. They besought him before departing to "disclose us to ourselves, and tell us all that has been shown you of that which is between birth and death."

With words of wisdom, an answer appropriate was given to the woman holding a baby, to the ploughman, to the merchant. Begged one, "Speak to us of GIVING," and the prophet replied:

"It is well to give when asked, but it is better to give unasked, through understanding;

And to the open-handed the search for one who shall receive is joy greater than giving. All you have shall some day be given;

Therefore give now, that the season of giving may be yours and not your inheritors'."

Through the years the prophet's words have held true, for even today he who "through understanding" includes the MASSACHUSETTS INSTITUTE OF TECHNOLOGY as a beneficiary in his will can experience thereby a two-fold satisfaction. The successful culmination of his search for a worthy recipient and the anticipated results his generosity will assist in accomplishing. These satisfactions give an added value to the span of man's days and protect his usefulness to his fellowmen far into the future.

The Massachusetts Institute of Technology because of the high quality of the education given its students, its effective research work for aiding America in peace as well as in war, and the high character of its governing body and academic staff qualifies as an institution for serving our American ideals for the present and in the years to come.

But the seach, the finding, and the anticipated accomplishments are not enough; for without the properly worded record, man's plans for the future may go awry. Hence the prophet's importuning, "—give now," should be heeded. The giving need not be an immediate physical transaction, for written directions replace the spoken word when the speaker is no longer present, and a donor can frequently make by will a gift which is larger than he can make while living. Truly, *"it is well to give when asked, but it is better to give unasked, through understanding."*

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* The "Prophet" by Kahlil Gibran

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Technical Books

RECENTLY announced publications likely to be of especial interest to M.I.T. Alumni include:

Analog and Digital Computer Technology, by Norman R. Scott, '40, Professor of Electrical Engineering at the University of Michigan, a text suitable for self-study (McGraw-Hill Book Company, Inc., \$12.75).

Crystal-Structure Analysis, by Martin J. Buerger, '24, Professor of Mineralogy and Crystallography at M.I.T. (John Wiley & Sons, Inc., \$18.50).

Foundations of Electrodynamics, by Parry H. Moon, '27, Professor of Electrical Engineering at M.I.T., and Domina E. Spencer, '39, Associate Professor of Mathematics, University of Connecticut (D. Van Nostrand Company, Inc., probably \$7.50).

Frequency-Power Formulas, by Paul L. Penfield, Jr., '60, of the M.I.T. Research Laboratory of Electronics (The Technology Press of M.I.T. and John Wiley & Sons, Inc., \$4).

High Speed Testing (Vol. 1), a symposium co-chaired by A. G. H. Dietz, '32, Professor of Building Engineering, M.I.T., and Frederick R. Eirich, Polytechnic Institute of Brooklyn (Interscience Publishers, \$5).

Introduction to Mechanics, Matter and Waves, by Karl Uno Ingard, '50, and William L. Kraushaar, Associate Professors of Physics at M.I.T. (Addison-Wesley Publishing Company, \$9.75).

Methods of Regional Analysis, by Walter Isard in association with Gerald A. P. Carrothers, '59, and others (The Technology Press of M.I.T. and John Wiley & Sons, Inc., \$9.50).

Nuclear Fusion, edited by William P. Allis, '23, Professor of Physics at M.I.T., reporting significant ideas on fusion presented at the 1958 conference in Geneva (D. Van Nostrand Company, Inc., \$12.50).

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1961 Alumni Register

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UP TO DECEMBER 1, total of 38,023 Alumni—over 70 per cent of those to whom announcements of the forthcoming publication of the 11th edition of the MIT ALUMNI REGISTER were sent last May—had checked and returned the enclosed IBM card thus verifying the data for the individual's listing in the new book.

Such an unprecedented response, far in excess of the optimistic hopes of the undersigned editors, ensures that in *completeness and accuracy* the 1961 REGISTER will surpass the high standards set by its predecessors.

INCLUDING present Alumni and the 1959-1960 student body, the *Alphabetical-Living* section of the 1961 REGISTER will contain an estimated 56,000 names—each with Class numerals, Course, all MIT degrees received . . . and with address, position held, and firm name *wherever it has been possible to obtain such verified information*.

During November, editorial work on the *Alphabetical-Living* section was completed, and we began sending copy to the printer. Since this main

section will extend over 360 pages of text, it has been agreed that no further changes are to be made once a listing has been set in type. To do otherwise would disrupt pressroom and bindery timings and seriously delay the appearance of finished cloth-bound books.

WHEN TYPE-SETTING on the *Alphabetical-Living* section is finished, the data cards will be re-sorted to obtain copy for the section in which the names will be cross-referenced *Geographically*.

The new book also will contain other sections as follows:

(1) *Members of the Corporation since 1862*, over 430 names with dates of service.

(2) *Members of the Institute Faculty and Staff since 1865*, over 12,650 names with the Institute Departments in which they served or are serving, and their dates of service.

(3) *Officers of the Alumni Association since 1876*, with positions held, and their dates of service.

(4) *Deceased alumni*, now totalling more than 14,105, whose names will be listed alphabetically with numerals in a complete roster.

PRESS-WORK on the final portions of the book is scheduled to commence in February, five weeks being allotted to the printer before finished copies are to start emerging from the bindery. Thus, we expect to fulfill all *advance orders* by April 10, the Institute's centennial anniversary date.

PRODUCTION of a 650-page reference work such as the forthcoming 11th edition of the REGISTER is an expensive undertaking. Nevertheless, in order to secure a wider distribution of the 1961 REGISTER—which will list 14 per cent more alumni than the book of 1955—the Executive Committee of the Alumni Association established a cash discount for advance orders accompanied by payment at \$7.50 per copy post paid. The post-publication price will be \$9.00 per copy.

H. E. LOBDELL '17
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Club Notes

Linsley Receives Silver Stein

The traditional annual Silver Stein dinner was held on December 13 at the ballroom of the Hotel Biltmore with D. Malcolm Fleming '33, as Chairman. The Silver Stein award was originated by the club in 1951 as a testimony to a member for his contributions to the Institute and/or the club. This year the honor went to Duncan Linsley '22, whose name now joins those of other notable Alumni: Lester D. Gardner '98, Thomas C. Desmond '09, Gerard Swope '95, Alfred P. Sloan '95, C. George Dandrow '22, Thomas D'Arcy Brophy '16, and Alfred T. Glassett '20.

The club's quarters have been a meeting and eating place for many Alumni from New York City as well as from other parts of the continent and globe, and from all classes. Seen recently in the dining quarters were Benedicto Padilla '27, of the House of Representatives, Manila, Philippine Islands; Ray McMartin '51, Omaha, Nebr.; Hugh Hamilton '29, Durham, N. H.; Don Severance '38, from the Institute; Pete Sanger '18, and Lars Ekwurzel '35, along with others from the borough of Manhattan. Lars left his advertising work in New York for a brief spell during the warmer weather when he took his family to Lake George and inadvertently was mistaken as a forest ranger as a result of an 18-foot American flag he put up merely to feel at home. The flag drew tourists from the vicinity asking where they might camp for the night. While Lars was catching perch with Bisquick dough (truth), Dix Proctor '17, was enjoying a home-made cake at the club in honor of his birthday.

The classes of 1896 to 1909 held a group luncheon in November. Greg Dexter '08, Mr. and Mrs. Clarence Joyce '03, Mr. and Mrs. Robert King '03, George Wadleigh '97, and Colonel Maurice Scharff '09, were among those present. A special table is available which can accommodate eight or ten people for lunches. There is also a club table for lone beavers looking for ad lib with other Alumni. The beer party was held late in '60, commandeered by Dave Springsteen '54, and John Preschalck '54. John is also working with Howie Bollinger '43, to increase an already growing membership.

As we turn into 1961 with Christmas and New Year's festivities behind, the members of the club have plans mapped for a group-travel trip to Europe, management seminars, Long Island and Westchester section social activities, and more interesting news in the Club Newsletter (now running six pages of items and pictures).—James M. Margolis '52, Secretary, 5 Fenton Street, Rye, N. Y.

Charles S. Draper Speaks in Philadelphia

We started the fall season with an excellent dinner meeting at the Franklin Institute where we heard Dr. Charles S. Draper '26, Director of the Instrument Laboratory at M.I.T., talk about "Missile Guidance Systems." We were tremendously entertained and all well informed by the "Grand Panjandrum of inertial guidance" (Time Magazine), who told of his experiences, particularly in the development of the World War II bombsight and the present guidance systems. We had 103 of our local Alumni present.

We were delighted to have a report that Andy Anderson's health is improved. Ken Lord '26, announced regrets at the loss of our assistant secretary, Enno Sauer '37, in his promotion to a new assignment in Knoxville, Tenn.

Our next meeting will be at the Barclay Hotel on January 23, when Bill Pleasants '33, will make a trip back from Alaska to tell about his BMEWS Project. At that same meeting, we will elect officers for the coming year. The nominating committee is C. Willis Stose '22 (Chairman), Edmund A. Whiting '15, Stephen B. Hazzard '43, and Henry W. Jones '26.—Herbert R. Moody '41, Secretary, 3010 Tower Road, Huntingdon Valley, Pa.

Northern Californians Welcome Professor Albert Bush-Brown

The M.I.T. Club of Northern California is now a thriving organization of about 1500 members. Wednesday evening, October 28, they held their quarterly meeting in the new Crown-Zellerbach building in the financial district of San Francisco with a booming record attendance of 115, of whom 75 were members.

The meeting featured a guided tour of the Zellerbach building, held to be the outstanding architectural achievement of its kind on the West Coast, followed by cocktails, a superb beef stroganoff dinner with all the accompaniments, and a talk by Professor Albert Bush-Brown of M.I.T.'s Architecture department. Prior to Professor Bush-Brown's talk, Professor Locke of the Department of Modern Languages spoke briefly. Professor Bush-Brown was introduced by the club's president, J. D. Rittenhouse '40. Along with Mr. Rittenhouse and Professor Bush-Brown at the head table were Royce Greatwood '24, the club's vice-president, with Mrs. Greatwood; Rock Hereford '24, with Mrs. Hereford; Fred Helverson '39, of the Crown-Zellerbach Corporation, who managed the tour of the building; Paul Austin '16, with Mrs. Austin; and Martin Robbins '56, the assistant treasurer of the club. The club's secretary-treasurer, Keating Keays '55, and its vice-president, Fred Noonan '40, were unable to attend.

Members of classes ranging from L. F. Miller '01 to a member of the class of '60 were there. Some of the higher ranking members were General Dwight F. Johns '22, and Colonel R. S. Beard '05.

Professor Bush-Brown gave an excellent talk on South America, showing the architectural trends and the social and

cultural development in South America. He criticized some of the architecture and praised other examples of it, delivering what was a very entertaining and informative lecture re-enforced by color slides which numbered well in excess of 50.

Club members, such as John O. Merrill '19, were present from such faraway places as Portland, Ore. This meeting was the beginning of a great future for the club. With the aid of other speakers of the high caliber of Professor Bush-Brown, the club hopes to increase both attendance and reputation. The word has already spread rapidly, and the number of dues-paying members is increasing exponentially.

The club is grateful to the Zellerbach Corporation for its help, as well as to Bill Knowles '32, who supplied guides from the firm of Hertzka ('30) & Knowles. Guides were also provided by Skidmore Owings & Merrill. We hope all the members enjoyed the meeting and that the interest in the club will continue.—Keating Keays '55, 2239 40th Avenue, San Francisco 16, Calif.

Rocky Mountain Club Is Now in High Gear

On September 19, Joseph S. Bowman '41, President of the Rocky Mountain M.I.T. Club, executive officers and committee heads met with Don Severance '38, Secretary of the M.I.T. Alumni Association, to discuss club plans and get the 1960-1961 year's activities into high gear.

Dr. Robert R. Schrock was in town for meetings of the Geological Society of America just long enough to give a stimulating dinner-talk to 38 quickly summoned members and wives on November 2, at which Dr. Schrock verbally built the Earth Science Department from the ground up. Charlie Brokaw '22 reported on the scholarship and new student activities of the club. Retiring President Joe Bowman introduced the new President, Sam Welch '26, of the Bureau of Standards at Boulder. Sam will lead the Rocky Mountain Alumni through the coming year with the help of Frank R. Cook '32, Vice-president. The irreplaceable Ben Oxnard '25 will continue as Secretary-Treasurer.

Joseph Bowman in two years of dedicated work has revitalized the M.I.T. Rocky Mountain Club. Joe, together with Charlie Brokaw, has arranged for such after-dinner speakers as Colonel Clair E. Towne of the North American Air Defense Command and Dr. Walter Orr Roberts, Director of the high altitude observatory at the University of Colorado. Dr. Roberts, who recently returned from Russia, felt he could accept only one speaking engagement last spring. He was convinced that the Rocky Mountain Club should be the one. Increasing the membership four times and generating greater interest than ever before, Joe has ushered in a new era for M.I.T. in the Rocky Mountains.—Benjamin A. Oxnard '25, Secretary, P.O. Box 5308 Terminal Annex, Denver 17, Colo.; Bernard Silver '57, Assistant Secretary, 315 Clermont Street, Denver 20, Colo.

Boston Luncheon Club To Hear Noted Speakers

The M.I.T. Boston Luncheon Club presents a wonderful opportunity for Alumni from the Boston area to get together and hear outstanding speakers on significant subjects.

The schedule for 1961 promises to be stimulating. On Thursday, January 19, Edward J. Logue, Director of Development for the City of Boston, will speak on "Urban Redevelopment." On Thursday, February 16, Dr. John B. Wilbur '26, Head of the Department of Civil Engineering at M.I.T., will discuss "New Developments in Civil Engineering Education." On Thursday, March 16, William Webster '23, President of New England Electric System and Yankee Atomic Electric Company will talk about "Atomic Power in New England."

Dr. Samuel J. Mason '47, Professor of Electrical Engineering at M.I.T., will discuss "Sensory Perception for the Blind" on Thursday, April 20. Thursday, May 25, will be a dinner meeting. At this time, the Boston Luncheon Club will present Dr. James R. Killian, Jr. '26, Chairman of the M.I.T. Corporation, who will speak on "M.I.T.'s Second Century."

This is an excellent chance to renew your ties with M.I.T., see old friends and make new ones while bringing yourself up-to-date on current topics. All meetings will be at the Union Oyster House, 41 Union Street, at 12:15 p.m. except the dinner meeting on May 25 which will be at the Faculty Club. For further information contact William S. Edgerly '49, Chairman, 15 Three Ponds' Road, Wayland, Mass., or Charles Hieken '51, Secretary-Treasurer, Ezekiel Wolf, Wolf & Greenfield, 68 Devonshire Street, Boston 9, Mass.

Club of Puerto Rico Has a Busy Year

The M.I.T. Club of Puerto Rico has been very active this year. The first get-together of our members and wives, a cocktail party, at the Club Nautico of San Juan, was celebrated last May. This activity was scheduled to concur with the International Housing and Town Planning Congress which was meeting in San Juan at that time. We thus had the pleasure of entertaining various M.I.T. Alumni from the United States and other places as far away as the Philippines. Our members enjoyed the privilege of having Mr. Frederick J. Adams, Professor in the Department of City and Regional Planning of M.I.T., as our main guest.

On August 21, the warm weather called for lazy relaxation and a prolonged dip in the Atlantic waters. That is just what we did. A large group of our fellow beavers, wives and children traveled to Breña, one of the beautiful coral sand beaches surrounding San Juan. The subjects of conversation, and the different points of view, as usual, were too many to detail here, but everybody agreed on one thing: "This has been one of the most enjoyable get-togethers we have ever had."

Saturday, October 22, was the occasion for dinner at the Swiss Chalet res-

taurant. According to comments from some of our old-timers this affair gathered one of the largest and happiest groups of members. Wives being present and cocktails before dinner contributed to make the party a success.

Condado Beach was the scene of the last activity before our annual meeting. A de luxe dinner on December 3 was followed by Mr. Jaime Benítez, Chancellor of the University of Puerto Rico, as the main speaker.—Oscar González Cabanillas, Secretary, P.O. Box 4729, San Juan, Puerto Rico.

M.I.T. Women's Association Plans Schedule for 1961

The M.I.T. Women's Association has planned five meetings for 1961 to present interesting programs to the Alumnae of the Institute. On Saturday, February 11, at 12 noon, Mr. Jan Hahn from the Institute of Oceanography at Woods Hole will speak about "Ocean-Going Scientists." This will be a luncheon meeting in the Emma Rogers Room.

On Saturday, March 11, at 12 noon, women from many foreign lands who are currently studying at the Institute will be featured in a luncheon program in the Emma Rogers Room.

A Centennial celebration meeting has been planned for Thursday, April 27. Dinner will be at 6:30 p.m. and the program at 8:00 p.m. will present President Julius A. Stratton '23, and Dr. Dorothy W. Weeks '23, to help usher in the Second Century. All students are invited to this dinner meeting at the Faculty Club.

The annual meeting is scheduled for Wednesday, May 24, at which time Dr. James R. Killian '26, recent Scientific Advisor to President Eisenhower, now Chairman of the Corporation of M.I.T., will talk about the Institute. This will be a dinner meeting at Endicott House, M.I.T.'s country estate in Dedham at 6:30. The program will begin at 8:00 p.m.

Guests, including husbands, are always welcome, and membership is open to every woman who has ever studied at the Institute, whether for one course or for several degrees. For reservations or further information get in touch with the corresponding secretary.—Miss Martha Goodway '57, Corresponding Secretary, 64 Waterman Road, Roslindale 31, Mass. Telephone FAirview 3-8264.

Central Pennsylvania Stirs Student Interest in M.I.T.

The Central Pennsylvania area was recently visited by Professor S. William Gouse, Jr., Assistant Professor of Mechanical Engineering at the Institute. On the evening of October 25 Professor Gouse and Harold Spaans, Educational Counselor, attended college night at the William Penn High School in Harrisburg. On October 26 visitations were also made to Cedar Cliff, Camp Hill, Susquehanna, and Central Dauphin High Schools in the Greater Harrisburg Area for the purpose of talking to prospective engineering students interested in attending M.I.T. Be-

cause of Marshall Holcombe's being in London, England, the October 26 visitations were assisted by Bob Peterson, who is the third M.I.T. Educational Counselor in the area. The response to Professor Gouse at all schools was most gratifying, and Professor Gouse's attendance definitely helped not only in promoting M.I.T. but also in getting more students interested in the engineering profession.—Robert K. Peterson '48, Secretary-Treasurer, 566 Brentwater Road, Camp Hill, Pa.

Zeno Klinker Speaks to California Alumni

Some 60 members of the M.I.T. Club of Southern California and their wives enjoyed a dinner at the Nikabob Restaurant October 13 and heard a most interesting talk with pictures by Zeno Klinker on "Man's Conquest of Air and Space." Mr. Klinker writes the script for Edgar Bergen, Charlie McCarthy, Mortimer Snerd and his namesake, Effie Klinker. For many years he has piloted his own plane and for some 30 years has made a hobby of collecting material and taking pictures of notable events in air and space history. His pictures are fascinating and his story full of unusual detail and humor.—Albert A. Levingston '49, Secretary, 3850 Wilshire Boulevard, Los Angeles 5, Calif.

Gordon S. Brown Visits Rochester

The highlight of our fall program has been the visit to Rochester of Gordon S. Brown '31, Dean of the School of Engineering. Dean Brown's presence inspired a dinner on October 2 at the Genesee Valley Club to organize the Second Century Fund Drive. Howie Samuels '41 will be the area chairman with Fred Kolb '38 and Charlie Payne '33 as his chief lieutenants. Extra interest was added to the meeting by the presence of Phil Peters, head of regional solicitation. Sheldon Smith '31 made the arrangements for the evening.

On Thursday, October 3, a joint dinner meeting was held with 18 Rochester engineering societies at the Chamber of Commerce. Over 300 Alumni, members of the engineering societies, wives, and area students and teachers attended the dinner. Dean Brown gave a timely and provocative speech on "Education—The Ultimate Weapon." M.I.T. Alumni who worked diligently on the program included Clarence Wynd '27, who introduced the speaker, Al Bagg '37, Gordon Calderwood '27, and Phil Kron '34.

During October 2, 3, 4, Harry Essley '36, head of our educational counselor, had Irwin M. Jacobs '57, Assistant Professor of Electrical Engineering, as a visitor in Rochester. Mr. Jacobs, accompanied by the respective educational counselors, visited 11 of our area high schools.

We are pleased to report that Dr. David MacAdam '36 recently became president-elect of the Optical Society of America. This is one of the many honors that have been accorded Dr. MacAdam in the field of optics.—John D. O'Brien '51, 250 Chelmsford Rd., Rochester 18, N. Y.

Washington Alumni Learn of Federal Aviation Problems

For our first formal meeting of the year we were extremely fortunate to be able to present on October 28, General E. R. (Pete) Quesada U.S.A.F. (Retired), Administrator of the Federal Aviation Agency, speaking on the "Federal Aviation Agency—Problems of a Regulatory Agency." One hundred and thirty were in attendance to hear his most informative talk. Cocktail hour preceded an enjoyable dinner.

General Quesada explained the Federal Aviation Agency's endeavor to develop a program which includes a supersonic transport airplane. He feels reasonably certain that within ten years this country will have a supersonic transport airplane which will be economically feasible. Speed will be in the range of Mach 3. As of this date the studies indicate that the length of the airport runways needed will be approximately the same as is used in present-day jet traffic. The program must be economically feasible and profitable for industry and the public.

General Quesada then related his experiences during a recent three-week exchange tour of the Russian commercial aviation system. He and his staff felt that excessive governmental control has stifled initiative in the Russian commercial aviation industry. The consensus of opinion of the American visitors to Russia was that their commercial aviation industry is not up to our standards in either equipment or programming. Their best transport plane is not nearly as well equipped as our best and would not meet our standards for certification.

A very stimulating question and answer period followed. Items of discussion included the recent aircraft accidents, their causes, and equipment being developed to prevent recurrences. Our next meeting was the third annual Christmas vacation luncheon on December 29. Local M.I.T. undergraduates and high school students who are prospective freshmen were our guests. We have found this to be a very rewarding meeting for the high school student because he can meet and talk with undergraduates to get the inside story of life at M.I.T.—Gilbert H. Lewis '51, Secretary, 9914 Grayson Avenue, Silver Spring, Md.

Lehigh Valley Alumni Tour Plant

In keeping with our custom of several years, the fall meeting of the M.I.T. Club of the Lehigh Valley featured a plant tour, this time to the General Machine Company in Emmaus, Pa. The meeting was held on Thursday, October 27, 1960 and 18 members attended. The group gathered at the Lehigh Valley Club in Allentown for dinner, followed by a short business meeting. Arnold Copeland '40, presided. Bill MacKenzie '45, Treasurer, reported that the club is again solvent.

Discussion was held on means to make The Technology Review available to all secondary schools in our area, in

addition to those already covered. Observance of the centennial celebration was discussed, as well as forthcoming meetings. There was much favorable comment on the M.I.T. television presentation of "The Thinking Machine." It was decided that the club will take steps to have secondary school students reminded of the next broadcast.

After a drive of five miles the group reconvened at the General Machine Company. Their president and plant manager both greeted us and described their products, which are primarily boilers and combustion equipment, then escorted us through the plant. It was surprising to learn that anthracite stokers are a substantial and continuing part of their business. Oil-fired units are in growing demand; developments with other heating media are being considered. Since customers procrastinate even in such major preparations for winter as heating plants, this portion of their business is concentrated in early autumn. Hence their plant and well-equipped foundry accept outside orders for welded assemblies, castings and machined parts in a varying proportion of their capacity during the year. We were most favorably impressed by the skill and versatility of this relatively small company and its modern high-grade machine tools. There is a real opportunity and need for plants of this type in our local industrial community.—William V. Bassett '39, Secretary, 510 Delaware Avenue, Bethlehem, Pa.

Israel Alumni Elect Officers

A fall meeting of the M.I.T. Club of Israel took place in Tel-Aviv recently. The following officers were elected: Joseph G. Zeitlen '39, President; Chiam Swirsky '33, Arie Kaplan '52, and Paltiel Makleff '53, Vice-presidents; Isaac Minkoff '56, Secretary-Treasurer.

The club plans to meet at least twice a year, and would appreciate knowing of M.I.T. Alumni visiting Israel so that invitations can be given to participate in club activities. All communications may be addressed to the club secretary.—Isaac Minkoff '56, Secretary, Department of Metallurgy, Technion, Haifa, Israel.

Deceased

GEORGE A. CUTTER '95, November 2*
CHARLES M. CARPENTER '00, September 29*
CHARLES H. COMEY '00, March 8, 1959*
FRANK DEMERITTE GAGE '00, September, 1960*
SUSAN MARA MAGUIRE '01, no date given
DUNCAN WEMYSS '02, October 3*
HERBERT C. MERRILL '03, October 5*
OGDEN R. ADAMS '06, November 16, 1959*
LEVERETT CUTTEN '07 October, 1960*
CHARLES EVERETT '07, August 4*
ERNEST CURLEY '09, no date given*
THOMAS R. HANINGTON '09, no date given*
JOSEPH L. RICHARDS '09, August 11, 1959*

Sloan Fellows

A very successful meeting of the members of the Society of Sloan Fellows in the New England area was held at M.I.T. on November 2, with approximately half of the New England Sloan Fellows present. Another regional meeting was scheduled for New York City on December 14 in conjunction with the Sloan Fellows' annual visit with industrial and financial leaders there. Dean Emeritus E. P. Brooks was slated to discuss with the group some of his reflections on development of management in Asia as an outgrowth of his leadership of the M.I.T. faculty team which conducted a series of seminars in India last summer.

Announcement was made on December 2 of the plan to award 45 Alfred P. Sloan Fellowships to young executives in American industry for the 1961-62 year. Applications are to be filed with the Director of Executive Development Programs at M.I.T. by February 1, with announcement of the awards in April.

A number of new assignments have been made for members of the Sloan alumni group: **Federico G. Baptista**, '51, has been elected a director of Creole Petroleum. . . . **David Easlick**, '55, is now vice president of the Michigan Bell Telephone Company. . . . **Bennett D. Buckles**, '53, has been made vice president—Sales, Plastics Division, Allied Chemical Corp. . . . **Edward B. Kobylzak**, '57, is the new manager, Actuator Activities, Saginaw Steering Gear Division, General Motors. . . . **John Gerstenmaier**, '52, has become plant manager of the Akron Industrial Products Operations, Goodyear Tire and Rubber Co., Plant II. . . . **Eugene R. Karrer**, '59, is now manager—Vehicle Development Department, Ford Division—Ford Motor Co. . . . **Marlin P. Nelson**, '57, has been assigned as Assistant Director, Advanced Management and Methods Division, Sun Oil Company.—**John M. Wynne**, Room 52-455, M.I.T., Cambridge.

SAMUEL KOSTICK '10, September 28*
IRWIN S. JOSEPH '12, October 7
RAYMOND R. WEAVER '15, August 31*
HENRY S. BENSON '16, September 14
RALPH DOUGLAS BOOTH '20, November 21
GODFREY B. SPEIR '22, October 23*
EDWARD J. ZIOCK, Jr. '22, July 19*
FREDERICK E. MARTIN '24, October 1*
JOSEPH J. REDINGTON '25, September 8*
PHILIP H. W. CREDEN '27, October 6*
J. EDWARD STROUT '31, August 2*
GEORGE C. WEAVER '31, March 4*
WALTER C. VOSS '32, November 2
WILLIAM R. HASTEDT, Jr. '37, May 12
JOHN G. ROTE, Jr. '38, October 6*
EUGENE S. PULK '43, October 5*
GEORGE ROSENBLATT '44, November 2*
CHARLES H. STEVENS '51, September 24*
DONALD M. TRASK '53, August, 1960*
* Further information in Class Notes.

Class Notes

'95

As these Class Notes have to be sent to press a month and a half before they appear in print, our 65th year after graduation is covered only up to November 15. We started the year with 20 members and appear to have them all except one, our old friend, **George Cutter**, who left us November 1. He died at the Faulkner Hospital, Boston, after suffering from a broken hip caused by a fall at his home, 215 Village Ave., Dedham, Mass.

George Albert Cutter was born January 24, 1874, at Vineland, Kansas. He was married June 4, 1902 to Mabelle Locke Mudie, who died February 20, 1911. On May 1, 1913, he married Florence Maxim. Besides his wife, he leaves two daughters, Mrs. Barbara Anderson, of Larchmont, N. Y., and Mrs. Elizabeth Wyman, of Winchester, Mass.

Mr. Cutter received his S.B. degree in Mechanical Engineering from M.I.T. in 1895. He then went to work for the Cocheco Manufacturing Company of Dover, N. H., and in 1902 he went to the Improved Paper Machinery Company of Nashua, where he was a mechanical engineer. From 1904 to 1906 he was general manager of the Vacuum Process Company in Boston, and from 1906 to 1919 he was manager of the Call Drier Company plant in Taunton, Mass. Cutter was later president of the Thompson-Gibb Electric Welding Company of Lynn, and director of several other companies. He was a member of many organizations, both professional and social, including the American Society of Mechanical Engineers; Engineers Club of Boston; Dedham Country and Polo Club; Dedham Masonic Club; The Society in Dedham for Apprehending Horse Thieves; Cruising Club of America, of which he was a former Commodore; Monomoy Yacht Club of Chatham; Boston Yacht Club; and Moses Paul Lodge A.F. & A.M. of Dover, N. H. Private services were held November 5 in Dedham. —**A. D. Fuller**, Assistant Secretary, 120 Tremont St., Boston; **Luther K. Yoder**, Secretary, 69 Pleasant St., Ayer, Mass.

'96

In the November Review account of the Alumni Luncheon in June, Miss **Hattie Gates'** married name was given as Williams, but it should have been Mrs. Arthur F. Campbell. Happily, the felicitations to her were extended in person, and now the record has been corrected. . . . The secretary is anxiously awaiting a letter from **Charles G. Hyde**,

which he has been led to expect. His anxiety would be relieved if several other classmates would send some word of their activities or of their inactivities.

Recently from the Alumni Association has come notice of the death of **Ernest E. Mead** on Nov. 25, 1954. His last address was Sausalito, Calif. He married Nora Noble; served in the U. S. Revenue Cutter Service 1905-1910; in the Spanish-American War and World War I. He was Chief Engineer and Assistant General Manager of Noble Electric Steel Co., of San Francisco. He was interested in community affairs and became president of the local school board.

At the October Meeting of the Alumni Association, among the newly appointed associates, who were asked to stand, was Joseph Harrington, Jr., Class of 1930. Your secretary and Joe recognized each other but didn't have a chance to converse. At this meeting announcement of the many events planned to celebrate M.I.T.'s Centennial were made. The birthday was April 10, 1861. The Boston Sunday Herald of October 30 included a 180-page supplement in connection with M.I.T.'s Centennial. "A major event of Centennial Week will be closed conferences on science and engineering education, April 3 through 6. A hundred distinguished participants, drawn from around the world, will discuss the current issues in science and engineering education. . . ."

Charles M. Stamp celebrated his ninetyeth birthday on November 3.—**James M. Driscoll**, Secretary, 129 Walnut St., Brookline 46, Mass.; **Henry R. Hedge**, Assistant Secretary, 105 Rockwood St., Brookline, Mass.

'98

Happy New Year to all our classmates.

Our secretary, **Ed Chapin**, left around Nov. 15 for a visit to his daughter, Mrs. Holden Furber, at Gradyville, Pa., a suburb of Philadelphia. He expects to be active with frequent out-of-door walks. While there, he hopes to drop in on our classmate **Maurice Delano** in Haverford, Pa., also not too far from Philadelphia. Ed will return around the first of January.

In collaboration with the annual convention of the A.S.C.E., held in Boston, the Department of Civil and Sanitary Engineering of M.I.T. was host on the evening of Oct. 13, to the alumni of this Department at a cocktail hour and dinner at the M.I.T. Faculty Club in Cambridge. Prof. Wilbur '26, the head of this department and Master of Ceremonies, introduced several leading engineers of the alumni and members of the A.S.C.E. About 140 were present, which we learn represented approximately three per cent of living alumni who were graduated as Civil and Sanitary Engineers. Your two secretaries represented the class of '98. Many contacts were made during the social hour and dinner. One interesting one may be cited: Our secretary Ed, on learning that a guest neighbor at the table was from Short Hills, N. J., inquired

if she knew **Ralph Rumery**, a Course XI, '98 alumnus. She replied: "Why, yes. He lives on Barberry Lane just around the corner from our home." Such gatherings help us to realize the small world in which we now live.

Our president, **Dan**, occasionally receives a short note from our illustrious archaeologist **Gorham Stevens**. The last one dated July 19, 1960, informed that he was spending the summer with his sister on Aegina, a small island off the east coast of Greece and about 20 miles from Athens. . . . **Carl High** also writes on July 9, from Partridge, Kansas, that he is feeling pretty well with no particular complaints and that he is planning on shoving off before long for California to visit his daughter in Glendale. . . . Robert Jones, recently employed in Remington Rand's Boston office as a Systems Analyst, has accepted a position with General Electric in their computer department. He left Oct. 18 with his family for Phoenix, Ariz., where he will undergo a five months' orientation program on G.E.'s latest computers. Around the first of March he expects to return to the Boston area where he will be engaged in sales work. Bob, as perhaps many of you will recall, has been interested in the class of his grandfather, **Fred Jones**, and has attended as a guest, many of the '98 class gatherings. He is a graduate of Babson Institute, Class of '55.

A letter dated August 1, from **Abe French** of Bath, Pa., tells that he and his wife have been visiting their daughter in Seattle, Wash., during "Sea Fair" week when parades and queens are in order. He helps out by baby sitting with his two grandchildren. Occasionally, he picks

Birthdays

The M.I.T. Honor Roll now includes one centenarian, 92 nonagenarians, and 768 octogenarians. Best wishes are extended to the two Alumni celebrating their 90th birthdays, the seven who will be 85, and the thirteen who become 80 in the month of January. These people are listed below with dates of birth.

January, 1871—**CHARLES E. FULLER** '92, on the 8th, and **CHARLES H. SISSON** '02, on the 11th.

January, 1876—**THEODORE W. BRIGHAM** '00, on the 5th; **MABEL WALL SWEETSER** '02, on the 7th; **JOSEPH W. AMES** '98, and **HENRY R. HEDGE** '96, both on the 13th; **WILLIAM R. WOOD** '97, on the 14th; **EDWARD S. EVELETH** '02, on the 21st; and **GEORGE P. DIKE** '99, on the 30th.

January, 1881—**BENJAMIN E. MCKECHNIE** '02, on the 3rd; **DEZ C. SCHONTHAL** '05, on the 4th; **ARTHUR G. BRUCE** '06, and **PHILIP WADSWORTH** '04, on the 6th; **RALPH SHURTLEFF** '06, on the 7th; **FRED B. CROSBY** '03, on the 16th; **JOHN H. CADY** '06, on the 17th; **ELINOR WHITNEY GARDINER** '05, on the 18th; **HOWARD MOORE** '04, on the 19th; **BYRON H. CLINGERMAN** '04, and **STANLEY B. PURDY** '08, both on the 21st; **JAMES P. BARNES** '05, on the 26th; and **HERMANN BEHR** '10, date not known.

strawberries and blueberries from cultivated farms for which the charge is only fifteen cents per pound. But "Oh, my back." The round-trip this time is being made by train.

The roster of names and addresses of living members of our class submitted to our class secretaries on July 1, by our president Dan, shows a total of 70. We are proud as well as fortunate to have such a goodly number with us sixty-two years since graduation.—**Edward S. Chapin**, Secretary, 2 Gregory St., Marblehead, Mass.; **Frederic A. Jones**, Assistant Secretary, 286 Chestnut Hill Ave., Brighton 35, Mass.

'99

Pete Newell of the Bath Iron Works, a "down-easter" who knew his ship-building, had a native mistrust of pretense and sham. At a dinner in New York Pete heard the "big shots" tell the "little fellows" how cleverly they had managed to reach the heights. On being introduced, Pete said, "I am from a small yard on the coast of Maine with some hope for the future but more pride in the past. In a sentimental moment I visited the boss-shipwright of a small yard in Camden who had taught me my trade. Missing an old 'seamark' long imbedded in mud, I asked what had become of 'Nancy Dwelley?' He said, 'I swapped it for a horse and buggy, a lot in the cemetery, and a jack-knife.' 'How did you think of adding a jackknife?' 'Well I just figured I ought to get all I could.'" The anecdote (adapted from the Christian Science Monitor) subtly reminded the industry that the profit motive must not be lost amid the congratulations for deeds accomplished.

Burt Rickards is convalescing from a severe surgical operation. . . . **Norman Seavey** is active in the M.I.T. club in Orlando, Fla. . . . **Fred Grover** enjoyed a visit to M.I.T. and the Harvard Observatory where he was on the staff in 1899.

M.I.T. Centennial Week will be April 2 to 9, 1961. The Class of '99 has been invited to join with adjacent classes on Saturday, April 8, in an informal dinner and social evening. Your opinion of this idea would be helpful. Without obligation at this time, please let me know if it will be feasible for you to attend.

On Alumni Day in June 1960, Mr. and Mrs. "Tim" Kinsman, Mr. and Mrs. Hervey Skinner, Miles Sherrill and Percy Witherell enjoyed a happy day. Come and recall with them our "doings" at "Boston Tech" which we fondly believe helped to maintain the growth that has culminated in this auspicious celebration.—**Percy W. Witherell**, Assistant Secretary, 84 Prince St., Jamaica Plain, Mass.

'00

At a special convocation held at Boston College on October 12, 1960, Richard Cardinal Cushing presiding, Rev.

Henry M. Brock, S.J., was granted an Honorary Doctor of Science degree. It was then announced that the laboratory, library and chapel of Xavier High School, now being built on Route 2 in Concord, will be named in his honor. More than 300 persons attended the convocation and messages were received from the Pope, President Eisenhower, Senators Saltonstall and Kennedy and other world figures, felicitating Father Brock on the 60th anniversary of his entrance into the Society of Jesus. He was born May 8, 1876 in South Boston and was educated in schools in Roxbury and in Boston College High School. After obtaining an A.B. degree at Boston College he entered M.I.T., joining our class in our sophomore year, and graduated in 1900 from Course VIII. He then decided to carry out a long-time desire to become a priest and in the fall of 1900 he entered St. Stanislaus Novitiate at Frederick, Md.

When he completed his Philosophy course in 1905 he was assigned as a Regent to Holy Cross College and there taught Physics, Astronomy, Geology and Freshman German. During the next few years he also contributed articles to the Catholic Encyclopedia. In 1909 he began a four years' course in theology at the Theologate of the Lyons (France) Province of the Society of Jesus and was located in Hastings, England. Here, in 1912, he was raised to the subdiaconate, the diaconate and finally to the priesthood. He returned to the United States in 1913 and became a Professor of Mathematics and Physics at Boston College. He also was the chaplain at the Industrial School for Boys at Shirley, Mass. In 1915 for his Tertianship he spent a year of ascetical study and work at St. Andrews-on-Hudson at Poughkeepsie, N.Y., after which he was assigned to Woodstock College, Woodstock, Md., where he became Professor of Physics and Astronomy, teaching also Geology and Mathematics. During this time he also was pastor of a small mission station at Alberton, Md.

From 1924 to 1939 Father Brock was Professor of Physics, Mathematics and Astronomy at Weston College. Here he organized a weather station which was later accepted as part of the U. S. Weather Bureau Service. From 1939 to 1941 he was Rector at the Tertianship of the New England Province of the Society of Jesus at Pomfret, Conn. Then for two years he was the Superior of Holy Trinity Church in Boston. In 1943 he again became Professor of Physics and Astronomy at Weston College where he remained in active service until 1958 when he became Professor Emeritus. Beside his articles in the Catholic Encyclopedia he has contributed to the Book of Popular Science and to many periodicals. We congratulate Father Brock on his distinguished accomplishments as well as his many years of service to his Church.

We understand that Claude deSeze Dean, grandson of our classmate **Walter Dean**, is a member of the Freshman class at M.I.T. We wonder how many other grandsons of our classmates are or have been students here.

News has reached us of the death of three more of our class: **Charles H.**

Comey died March 8, 1959 at the Metropolitan State Hospital in Waltham where he had been ill for some time. . . . **Charles M. Carpenter** died September 29, 1960. He had been living in Bradenton, Fla. An autobiography was included in these columns in March, 1955. . . . **Frank Demeritt Gage** died in September 1960. He had lived for many years in Lawrence but moved in 1957 to Manchester, N. H.—**Elbert G. Allen**, Secretary, 11 Richfield Road, West Newton.

'01

I am finishing out the replies to my Class Letter of last spring. **Archibald Klieves, IV**, of Wheeling, W. Va., replied last April as follows: "I have been retired for several years but frequently use my experience and M.I.T. education. I have been a member of the Board of Commissioners of the Wheeling Housing Authority since 1941. It is a subsidized low cost project and the commissioners receive no compensation. Since the death of my wife in 1957 I have given considerable time to this project. This association has kept me in contact with the building industry and some of the city officials. In May I will be 85 years old and cannot walk the way I did in the past. I still like to walk but get tired too soon to suit me. I am fortunate to be able to continue living in the house that I built 30 years ago. My daughter and her husband have taken over the running of the home."

The last of the replies that I received came from **Roland Simonds, II**, of Winchester, Mass. He says: "Still going strong at the age of 82. Not much to write about. Retired 10 years ago after 42 years with the Factory Mutual. Enjoying life and able to keep pretty busy working around my vegetable and flower gardens. My outside interests are mainly in the church where I have been treasurer of the Building Fund for over four years and a member of the Official Board. Have taken a few trips in the past few years, in the spring to Florida and to the White Mountains in the summer. I always enjoy reading the class news in the Technology Review."

Ed Davis writes that he is hopeful that all the contributions to the Alumni Fund will have come in before January 1. But that is not to say that they will be unwelcome if they come later. He is putting a section in the February Class Letter and I will let him speak for himself. In the meantime, to be unelegant, he is as busy as the Devil in a gale of wind.

There will be no 1901 class notes in the February Review.—**Theodore H. Taft**, Secretary, Box 124, Jaffrey, N. H.

'02

News of the death of **Duncan Wemyss** at Ilion, N.Y., on October 3, 1960 has been received in a letter from Mrs.

Wemyss. He was a native of Charlestown, Mass., having been born there January 31, 1879. He prepared for M.I.T. at the Somerville High. Although for a few years after graduation he was listed in Boston with the Library Bureau, he had been a resident of Ilion for 32 years and at the time of his death was owner of the Ilion Coal Co. He took an active part in the affairs of his community and had been president of the Ilion Hospital for 21 years and on the Ilion Electric Light Board 12 years. Wemyss attended St. Augustine's Episcopal Church and was a member of the Community Club. Fraternally he was a 32nd degree Mason and a member Middlesex Lodge, #17, Odd Fellows. He is survived by his wife, Freeda Metzler Wemyss, a nephew, George Wemyss of Portland, Maine, and a niece, Mrs. Barbara Fonda of Weston, Mass.

At a recent homecoming day of the Stoneham High School **Dan Patch** found himself the oldest alumnus present and was the alumni parade marshal.

The following interesting letter has been received from **Mrs. L. Wallace Sweetser**: "This is a tardy reply to your request on an '02 Class Letter for some news from me. On July 19, 1959 my husband died which left me alone in a big New England house on the Main Street of Wakefield. As of April 1, 1960 I sold the property, and my youngest son, Robert, and I bought a two-bedroom ranch here in Cheshire, Conn. Please note it is not Chester as reported in the November Review. Robert has been with the Waterbury Farrel Foundry and Machine Co., for twenty years.

"Since I had graduated from Wellesley College before my year of study at M.I.T. I am a little older than many in '02—85 on next January 7 (1961). However I am very well except for a little arthritis and able to keep house. We were very fortunate in the purchase of our house. I find I have delightful neighbors and Cheshire, almost in the center of the state and surrounded by Hartford, Waterbury, New Haven and Meridan, offers almost anything one needs. My year at M.I.T. was one of the best of my life and I have never ceased to appreciate the opportunity to study there."—**Burton G. Philbrick**, Secretary, 18 Ocean Ave., Salem, Mass.

'03

The Review editors regret that these notes did not get into the December issue for which they were intended.

Your secretary is keenly impressed by the distant locations of our remaining classmates. Yet how fortunate that The Review on its periodic arrival brings us again in close communion, since our memorable 55th reunion at Fred Eustis' enjoyable estate. However, we hope you had a pleasant summer and we are anxious to hear of your latest activities.

Will Lounsbury, VII, of Fort Myers, Fla., was thrilled by mention of Professor Bates in the last report. He writes, "Was among the lucky freshman group

Arlo taught in memorable Huntington Hall." William embarked on his busy career after graduation and was employed for over 29 years at Superior, Wis. In 1935 the Electric Bond and Share sent him across the bay to Minnesota Power and Light Company where he stayed until his voluntary release in February of 1949 at his 79th birthday. He now enjoys happy retirement with his wife and visits from his 15 grandchildren.

Leroy Thwing, II, after a busy career is enjoying retirement and has found time to publish a second edition of his "Flickering Flames," a history of domestic lighting. Lee's latest achievement is in the poetic field, exploding with rare humor after pursuing one of his casual chores. His poem, entitled "The Screens" was printed in the "Towne-Elms Echo."

We received a cheerful message from our Treasurer, **Augustus Eustis**, who continues to look after our class duties, in conjunction with business affairs, with unabated interest. Though relaxing now, he manages his old important control of the Virginia Smelting Co., which now embraces Chemical Manufactures, and he is chairman of the board.

An interesting note is received stating that Emery Morton Low, 2nd, grandson of **Harry R. Low**, is a member of the M.I.T. Freshman Class. His father, Emery Morton Low, is also an alumnus of M.I.T., Class of 1929.

Our secretary wishes to announce the arrival of another grandchild, Paul Andrew, 2nd, on January 4, 1959. Paul Senior is U.S. Air Force Production Specialist, Oakland Army Terminal, San Francisco District, Calif.

Herbert C. Merrill, X, aged 80, and retired chemical engineer, died at his home in Stoneham, Mass., October 7. He was born in Peabody, Mass., and after local schooling and an early interest in the leather business, entered M.I.T. and graduated in '03. He served in executive capacities with many leather companies in New England, and was a pioneer and nationally known authority on the dyeing of leather. He was formerly a resident of Salem, and was a member of several chemical organizations. He leaves one daughter, Mrs. Helen B. Cushman; a granddaughter, Mrs. Edward P. Bates; and two great grandchildren.

In conclusion, for a reminiscent note, can we visualize the modest, quiet and orderly section at the rear hall of Rogers, proudly remembered as our former library, in the charge of Professor Burton. The calm within, in contrast to the clamor of the Hall without, was heightened as we glanced through the short alcoves of books, onto abutting Newbury Street, then a vista of elite residences.—**John J. A. Nolan**, Secretary, 13 Linden Ave., Somerville; **Augustus H. Eustis**, Treasurer, 131 State St., Boston.

'04

No obituaries, no news, therefore no class notes. We hope the first situation will continue and the apparent epidemic of writer's cramp will subside. So on this

bright November day we wish you all a very satisfactory 1961 together with the germination of an urge to tell us about your goings and comings and doings.—**Carle R. Hayward**, Secretary, Room 35-304, M.I.T.; **Eugene H. Russell, Jr.**, Treasurer, 82 Devonshire St., Boston.

'05

Through **Hub Kenway** we learn that **Doc Lewis** was honored last summer by an invitation to preside at certain sessions of the Symposium on Distillation held in Brighton, England, by the Association of Chemical Engineering Societies of Western Europe. After presiding at several sessions, Doc spent some time in Europe. . . . **Roy Lovejoy**, IX, seems to be recovering very slowly from his heart attack of last winter, but is back at his desk occasionally, getting around as his strength allows.—**Fred W. Goldthwait**, Secretary, Box 32, Center Sandwich, N.H.

'06

If it is true that "many a mickle makes a muckle" when applied to the Alumni Fund, so it is with class notes, so pray do send the class secretaries more of them. Here's one from **Percy Tillson**, VI, a postcard from the Barbados early in November saying, "At it again! This time island hopping. This is our eighth with three more to go. Each island different and all very much worthwhile. The bathing is delightful and I'm old enough to appreciate warmer water. Best regards to all." . . . In the November notes you heard how **Bill Furer**, IV, had added FAIA after his name. Well the September issue of "The American Engineer" throws more light on that. Listen to this: "William C. Furer, P.E., has retired after serving 34 years as secretary and executive secretary of the Hawaii Board of Registration for Professional Engineers, Architects, and Land Surveyors. Mr. Furer, now 81, had to retire when a law was passed requiring retirement at 70 of state employees. An M.I.T. graduate, he was instrumental in obtaining a registration law and organizing the Hawaii Board of Registration in 1923. Registered as both a P.E. and architect since 1924, he practised as an architect after serving with the U.S. Navy in Pearl Harbor as a civilian structural engineer. Appointed executive secretary of the Board of Registration in 1947, he held the post until his compulsory retirement in June 1960." Well done, Bill. . . The Golden Anniversaries keep coming along too, and on November 3 the **Terrell Bartletts** celebrated their 50th wedding anniversary. I had heard it was coming, so sent a card of felicitations from the class.

Arthur Scott Thomas, II, has moved from Auburn, Ala., to Abbeville, S.C., Box 450. He was born in Lowell, Mass., March 12, 1884; prepared at Lowell High and graduated with us, having been a member of the Lowell Club, Freshman Baseball Team and the Man-

dolin Club. His thesis was a "Test on Induced Draft System of Merrimack Manufacturing Company in Lowell," with J. R. O'Hara, Jr. Perhaps because of that thesis contact, Arthur spent his active business life in manufacturing, entirely, I believe in textiles. He was mechanical engineer with the Consolidated Cotton Duck Company of Baltimore in 1907, a few years later came up to Manchester, N.H., as assistant superintendent and then superintendent of Stark Mills; in 1920 he was superintendent and then for a number of years treasurer of Whitney Manufacturing Company of Whitney, S.C.; around 1940 general superintendent of Werthan Bag Corporation, Nashville; around 1946 vice president of Montichello Cotton Mills in Montichello, Ark., then vice president and manager of the Spatex Corporation of Charlotte, N.C. Around '55 Arthur evidently retired but he has kept moving around—one jump ahead of the sheriff, I suppose—from Myrtle Beach to Johnson City, then to Auburn. Are you moving up to the Cambridge Campus in June, Arthur?

One death to report: **Ogden Ross Adams**, we have just learned, died Nov. 16, 1959. He was with us only freshman year, commuting from his home in West Newton. By 1913 he was located in Rochester, N. Y., and remained there permanently, engaged in machinery sales, by 1925 being president and treasurer of his own company at various addresses in Rochester. In October 1936 he wrote Jim for that thirty years after, "After leaving M.I.T. I went with Stone & Webster Company, who transferred me to Seattle Electric Company, where I stayed for five years and later came east and entered the machinery business in which I have been ever since. I married Ruth McCauley in 1911. We have two children, a girl, Jane Ross, who is 21, and a boy, Ogden Ross, Jr., who is 18. My hobbies are gardening and landscaping." Notice of his death came through the Alumni Office from the widow to whom I am sending a letter of sympathy.—**Edward B. Rowe**, Secretary-Treasurer, 11 Cushing Road, Wellesley Hills 81, Mass.

'07

In reply to some 55 post cards that I sent out, nine '07 men gathered around the dinner table at the Faculty Club on Friday evening, November 4, 1960. We had one guest, Dr. Warren K. Lewis, Class of 1905.

The men attending the dinner were Ashenden, Coffin, Cumings, Martin, Rand, Robbins, Small, Wires, and your secretary. Several "regulars" were missing, some with and some without reasons. **Harry Moody** was celebrating his wedding anniversary on that date, and **Tom Gould** had a Portland date to keep. After an excellent roast beef dinner, the men asked questions about various classmates, which your secretary and President **Robbins** answered as fully as possible. Dr. Lewis then spoke to us of the changing views held by the Institute in regard to its philosophy of education

from the time of our graduation up to the present day. Dr. Lewis was graduated in '05, so he could speak understandingly to us of the events of our early years, as alumni, and then inform us more fully of the rapid growth in graduate students and the very important place they hold today in Institute life.

Tucky Noyes wrote me from his home in Falmouth Foreside, Maine, on October 19 and enclosed a clipping from the Kennebec Journal telling of committal services for our classmate **Leverett Cutten** in the Glenside Cemetery, Winthrop, Maine. Leverett married Aline King, a resident of North Monmouth, Maine, which accounts for his burial there, rather than in Allentown, Pa., where he had his home. Before coming to Tech, Leverett attended Bates College, 1901-1904, and earned an A.B. degree. He had two children, a son William and a daughter Alberta who died in infancy. From 1919 until his retirement in 1949, he was Plant Engineer for the Mack Truck Co. He had several hobbies. His principal one was that of silversmith. Others were the fashioning of bows and arrows, construction of telescopes, and making dry plate etchings. For Bates College he made a mace in 1949 and a presidential ceremonial collar in 1954. He made the mace that 1907 presented to the Institute in 1957 at our 50th Reunion. Right up to the time of his death, he had been working on a ceremonial collar for M.I.T. Leverett Cutten was born in Amherst, Nova Scotia, Nov. 19, 1880. He was married in November of 1907. Mrs. Cutten passed away in 1920. His son William attended M.I.T. and received an S.B. in Course III with the Class of 1939 and an S.M. in Course XII. I had noted on the postcard dinner notices the fact of Leverett Cutten's death, and many of the men, in sending in their replies, commented on the loss our class had experienced in his passing. **Jim Barker** wrote me a letter of regret and added, "Lev Cutten was an original thinker, a true artist, and an interesting man."

Bob Albro, in sending his regrets for not being able to get to the dinner, was thoughtful enough to send a check to apply to our class expenses. . . . **Parker Dodge** writes of his retirement. He says he "finds adjustment hard." Any of you men that write him, use his home address, 21 West Kirke Street, Chevy Chase 15, Md. . . . **Bill Coffin** writes as follows, "I have now retired from the active practice of architecture as the senior member of Sturgis Associates, Inc., of Boston, after 53 years of association with that office and its predecessor. I am still in reasonably good health at 82 years, but it is high time for retirement." Bill lives at Powder Point, Duxbury, Mass.

We, as a class, have reached that era of our existence when each set of class notes contains the names of several '07 men who have died, either recently, or the report of whose death has just come to the attention of the Alumni Register. . . . **Charles Everett**, Course IV, passed away on August 4, 1960, at the Deaconess Hospital, Boston. On behalf of the class, I wrote to his sister, Mrs. Madeline Loder, of Hingham, Mass. . . . **Saran D. Jalota**, Course VI, of 52 Circular Road,

Ranchi, India, died in November, 1951. He was a non-associate member of the class and was known, while at Tech, as J. S. Dass. Bryant's notes indicated he was affiliated with the Electric Supply Co. Ltd. The information was sent to the Alumni Register by his son.

M.I.T.'s Centennial will be especially celebrated the first 10 days of April, 1961. The period from April 2 to April 10, 1961 will be known as Centennial Week. The general plans call for various class gatherings, either individually or by group, on Saturday evening, April 8. The men at the Class dinner instructed me to prepare to hold our spring dinner on that evening. This is only a preliminary notice, so that many of you can start making plans to be in Boston for some of the events of the week and to be with the '07 gathering on Saturday evening. More information will be sent to each member later, when our plans are more complete.—**Phil Walker**, Secretary and Treasurer, 18 Summit St., Whitinsville, Mass.; **Gardner S. Gould**, Assistant Secretary, 409 Highland St., Newtonville 60, Mass.

'08

The first dinner meeting of the 1960-61 season was held at the M.I.T. Faculty Club in Cambridge on November 9. **Bunny Ames**, **Bill Booth**, **Nick Carter**, **Myron Davis**, **Leslie Ellis**, **Sam Hatch**, **Paul Norton**, **Henry Sewell**, and **Joe Wattles** were there, with **Mesdames Ames**, **Davis**, **Ellis**, **Hatch**, **Sewell**, and **Wattles** as our guests. As usual we gathered in the cocktail lounge around our regular table. While enjoying our favorite appetizers and the delicious cheeses and crackers from the buffet, we learned of the various summer activities of our group and their plans for the fall and winter. About 6:30 we moved on to the private dining room and decided what we wanted to eat. The food and service were just as fine as always. After dinner **Joe Wattles** showed us some fine Kodachromes which were taken by **Myron Davis** last winter and spring while he was vacationing in Florida, and the Southwest. There were interesting views of Florida, Mexico, Arizona and California. He talked by phone with **Bonillas** in Mexico City and saw **Bill Grimes** who is studying at the Instituto Allende. He also saw **Harry Bentley** in Claremont, Calif., and was able to visit a bit with **Frank** and Mrs. **Sharman** in Tucson, Ariz. Joe also showed some of his own Kodachromes taken at several of our past reunions. We adjourned about 9:30 P.M.

The second dinner meeting will be held at the Faculty Club on Wednesday, January 11, at 6 P.M. Hope you can be with us. And remember, ladies are invited. . . . Have you made your gift to the Alumni Fund? If not, please do it soon. That would be a fine New Year's resolution, and befitting Tech's 100th year anniversary.

Congratulations to: **Paul** and Mrs. **Norton** on the celebration of their Golden Wedding Anniversary at the Wellesley

Country Club . . . also **Bunny Ames** on receiving the 32nd degree in Massachusetts Consistory on October 29 . . . and to **Nick Carter** who was given the 50-year Veteran's medal in Star of Bethlehem Lodge A.F. & A.M. in December.

It has been decided not to hold a reunion this June, but to concentrate on getting a good turnout on Alumni Day, June 12, to make it the "best ever" for M.I.T.'s Centennial. Make your plans to be in Cambridge on that date.—**H. Les-ton Carter**, Secretary, 14 Roslyn Rd., Waban 68, Mass; **Leslie B. Ellis**, Treasurer and Assistant Secretary, 230 Melrose St., Melrose 76, Mass.

'09

In the Boston Sunday Herald of October 30 there was included a 180-page rotogravure section devoted entirely to the Institute. The front cover showed a colored airplane view of the Institute with a heading "Massachusetts Institute of Technology—A Century of Leadership—1861-1961." Needless to say, with so many pages the coverage of the Institute was most complete. There was included a brief history starting with the Institute's early struggles which were interrupted by the Civil War. Even the Doge prototype barge "Rococo Grandeur," which ferried the many dignitaries back and forth across the Charles during the "moving day" period in 1916, was there. In the middle of the section there was a double-page photograph of thirty-six members of the Corporation. Our class was particularly honored for in the front row were **Tom Desmond**, I, **Van Bush**, honorary member, and **Brad Dewey**, X, sitting among such distinguished members as former President James Killian and President Stratton. Incidentally, Walter Humphreys, the registrar in our days at the Institute, was also in the front row. Among the members not present in the picture was **B. Edwin Hutchinson**. Four class members in a total of 66 is well above the average representation. In addition there was an article by Brad Dewey, "M.I.T. and New England Industry," which told of the many M.I.T. graduates who were leaders and scientists in the development of many of the New England industries. There were also articles by two honorary members of the class—"The Impending Revolution" by Van Bush, and "How Scientists Work in Unison" by Dr. George Harrison.

In the December Review we told of the passing of **Royce Gilbert** and that we had written to Mrs. Victoria Gilbert expressing our sympathy to her and her family. She has replied and we quote from her letter. "Dear Chester: It is a great comfort to me to have your letter concerning Royce's death and it helps a lot in this my darkest hour. I thank you deeply. It was indeed a terrible shock as he had his physical 'checkup' about a month before this happened. Nothing wrong with his heart and to quote the doctor, 'the blood pressure of a young man.' So who could possibly be prepared

for this? It was a blood clot. We were very sorry to miss the 50th class reunion of '09. Royce was especially disappointed for he loved meeting with you boys, as I did. The girls too made the reunions lots of fun. The **Emersons** who were at the reunion came to visit us and we were interested in all they told us about it. As you know, they live in Boca Raton in this state. I think you did very well writing the notice for the class notes.

"Royce was born in LeMars, Iowa, went to Minneapolis with his family, and attended grammar and Central High School there. Then he attended the University of Minnesota for two years where he became a member of Sigma Epsilon fraternity. He always chuckled when he recalled that when he was in the 7th grade the teacher told him she wasn't going to pass him into the 8th grade. That didn't please him so he went to the high school, took the entrance examinations, and was accepted by Central High School and skipped the 8th. He figured that he got ahead of the teacher. He loved a challenge.

"When he entered M.I.T. he worked as an associate teacher under Mrs. Richards (Ellen), mining engineer. After graduation he joined Stone and Webster. Later during World War I he was with MacArthur Brothers and did work at their powder loading plant in Woodbury, N. J. After the war the first thing he did was to build a group of small fireproof homes in Newtonville, the first of that kind. Then as president of Chase and Gilbert he went into the engineering and construction of hotels, apartment houses, etc., all fireproof. The original Hotel Sheraton on Bay State Road was one. Hotel Lincolnshire and the beautiful Ritz Carlton facing the Public Gardens in Boston, 20 Newbury Street, and 100 Beacon Street (apartments) were other buildings of his. There were also the Motor Mart and Bowdoin Street garages, one of the Harvard Medical buildings, and two M.I.T. dormitories.

"There was a time in the twenties that Royce was president of the Atlantic Public Utilities, electric, water, telephone companies, even newspapers. He pioneered in mass building of small homes, laying out streets and landscaping, putting in the utilities, etc. His biggest project of this kind was building several hundred houses for the Carnegie-Illinois Steel Corp. at Clairton, Pa. His company then was Gilbert-Yarker. In the last war he was with the War Production Board under Walter Wheeler. Then came four years in Pennsylvania with Sordoni Enterprises, utilities, hotels, and construction, etc. Finally we moved to Eastchester, N. Y., where he was a consulting engineer and was associated with the Pitney-Bowes Co., of Stamford, Conn. As retirement time approached he planned this home in Florida and we came here in 1958. As a young man Royce enjoyed football and hockey and later on, golf and his rose garden, with electronics his science project. He was a member of The Founders and Patriots of America, The American Society of Civil Engineers, and the M.I.T. Clubs of New York and of Florida.

"We were married in 1911. I was Vic-

toria Sordoni. We have one daughter, Mrs. John M. Hitchcock of Framingham Centre, Mass., and two grandchildren, Anthony a student at Cornell, and Diane in grammar school. Again I thank you for your thoughtfulness. I am left with many wonderful memories."

Even we, who knew Royce quite well, were unaware of his many accomplishments. We believe that very few in the class knew of the many important buildings in different parts of the country which Royce built. Even we in Boston did not realize that he constructed so many of the prominent hotels, the Motor Mart, apartment houses, and dormitories right in our midst. We are proud to have had a classmate who accomplished so much. We are all most grateful to Victoria for having sent us such a carefully written account of Royce's career and we have written to her expressing our appreciation.

We have received notices from the Alumni Office of the deaths of **Ernest Curley** of Lewiston, Maine; **Thomas R. Hanington** of Shediac, New Brunswick; **Herman W. Haynes** of West Medford, Mass.; and **Joseph L. Richards** of Harvard, Mass. Unfortunately, our records do not contain any further information about these members of our class.—**Chester L. Dawes**, Secretary, Pierce Hall, Harvard University, Cambridge 38, Mass.; Assistant Secretaries: **George E. Wallis**, Wenhams, Mass.; **Francis M. Loud**, 351 Commercial St., Weymouth 88, Mass.

'11

At our annual dinner last November 7, there were exactly 11 classmates present, which coincides completely with our slogan "7-come-11." They were Ernest Batty, II; Obie Clark, II; Marshall Comstock, VI; Henry Dolliver, I; Fred Harrington, I; Jack Herlihy, II; Maurice Lowenberg, VI; Roy MacPherson, II; Morris Omansky, V; O. W. Stewart, I; and Norman Wade, II. Of course it would have been pleasant to have had a bigger turnout.

Reunion Chairman **Clark** told of his visit to Snow Inn, and said that he had made all arrangements for our Golden Anniversary next June. The roomy Captain's Cottage will be reserved for us. You will hear more from Obie in the months ahead. . . . **Stewart** said that he is still raising blueberries. He has two acres of new variety Cult berries, and protects them from bird damage with a newly developed netting called "Protect-o-net," made by Bemis Bros. Bag Co. Stewart also represents the Blueberry Plant Nursery and several Trust and Mutual Funds, which helps keep him busy. . . . **MacPherson**, an avid yachter, told of his wonderful three weeks last summer along the Maine coast, and two weeks at Nantucket and Vineyard Haven. He met and talked with several old "skippers," and enjoyed it. Roy also met Eldred Besse, II, whose home is in Fairhaven, and whom we very seldom hear from. . . . **Lowenberg** teaches two days

a week at Franklin Technical Institute, Boston. He spent the summer at Centerville, Cape Cod.

The subject of grandchildren brought out this data: Batty has two, both boys; Comstock has eight, five girls and three boys; Dolliver has seven, four girls and three boys; Herlihy has eleven, eight girls and three boys; Omansky has six, one girl and five boys; Stewart has sixteen, twelve girls and four boys; Wade has four, all boys.

Cards were received from the following other classmates who were unable to attend the dinner: Fred Daniels, VI; Calvin Eldred, VI; Carl Ell, XI; Tom Haines, II; Harold Hallett, VI; Roger Loud, VI; Munroe Pevear, IV; Carl Richmond, I; Don Stevens, II, retired Class President; Gordon Wilkes, II; John Alter, IV; and Franklin Osborn, III.

Roger Loud's card, prepared by a friend, said: "Am currently indisposed. Am at Villa Maria Nursing Home, 109 Commercial St., Weymouth, Mass. Expect to be at this address from four to eight weeks." Our sympathy, Roger, and hope you'll be out in circulation before this is published. . . . Last year was unfortunate for **Carl Richmond**. He suffered a stroke in June, and was hospitalized all summer. He had more trouble later and was again hospitalized. Our best wishes to him for complete recovery before this is published. . . . **Daniels** had an M.I.T. money raising meeting in Worcester on the 7th. He's planning to attend our 50th.

Eldred wrote: "Mrs. Eldred and I have just returned from a visit with our son and his family at Talladega, Ala., where he is manager of the large cotton mill of Bemis Bros. Bag Co. Our granddaughter was graduated from Gulf Park College, Gulfport, Miss., last spring and now is in her first year at Birmingham Southern College. Our grandson has just entered Indian Springs Preparatory School at Helena, Alabama." Note that Stewart is using Bemis nets. . . . **Carl Ell** said he was sorry he couldn't be present. . . . **Tom Haines** wrote: "Sorry to miss your evening meeting. Mildred and I are reasonably well." . . . **Hallett** wrote that his wife had died last April. Our sympathy and best wishes for his future. . . . **Pevear's** card said: "Sorry, but I will not be in or near Boston on Nov. 7." . . . **Wilkes** wrote: "Sorry, but Cape Cod is just a little too far from Cambridge. Best regards to everyone, and see you all at Snow Inn in June."

. . . **Alter's** message reads: "Circumstances beyond my control, including public and other transportation facilities, just do not co-operate. Sorry to miss." . . . **Osborn** had planned to come up from Vineland, N. J., but a trip to Pittsburgh interfered. . . . Retired Class President **Don Stevens** wrote: "Dear Henry and Jack: It is marvelous to receive your postal this morning. I wish I could see you. Best wishes to all the class."

Dr. **William H. Martin**, VI, attended the annual fall meeting of the Army Scientific Advisory Panel at Fort Knox, Ky. He was appointed to the panel in July, 1959. The panel was established by the Secretary of the Army in 1951, and is composed of 60 of the country's leading scientists, engineers, industrialists and ed-

ucators. It assists the Secretary and the Chief of Staff in their joint responsibility to give the U.S. a ground fighting force as effective, economical, and progressive as scientific, technological, and industrial resources permit. Dr. Martin received his bachelor of arts degree in 1909 from Johns Hopkins University, Baltimore, Md., his bachelor of science degree in 1911 from M.I.T., and two doctor of science degrees, one in 1956 from Bethany College, and the second in 1957 from Johns Hopkins.

Irving Wilson, XIV, has been with Aluminum Co. of America (ALCOA) ever since his graduation from M.I.T. in 1911. He became vice president of operations in 1930, senior vice president ten years later, president in 1951, board chairman in 1957, and in 1960 was elected chairman of the newly formed Finance Committee. He plans to attend our 50th Reunion.

The following address changes have been received: **Harry A. Lewis**, IV, 121 Main St., N. Kingston, R. I.; **Theodorus Polhemus**, II, 4126 E. Lester, Tuscon, Ariz.; **Edwin Pugsley**, VI, 76 Everit St., New Haven, Connecticut; Mrs. **Margaret Fulton Spencer**, IV, Las Lomas Estates, Route 9, Box 984, Tuscon, Ariz.; **Roy D. Van Alstine**, 21 Seventh Place, Long Beach 2, Calif.—**Henry F. Dolliver**, Secretary, 10 Bellevue Rd., Belmont 78, Mass.; **John A. Herlihy**, Assistant Secretary, 588 Riverside Ave., Medford 55, Mass.

'12

Congratulations to **Charlie Dodge** and Clara Hersom who were married on October 10. They are now living in Wenham after a wonderful wedding trip through Colorado, Mexico, Arizona, Utah and Idaho. Charlie is operating the family furniture business in Manchester, Mass., which was started by his great grandfather in 1841. I had a very pleasant visit there this summer and was especially interested in the steam engine which is still used for the main mill drive. Their later machines are of course electrically operated but the old boiler and single cylinder engine are still in use. Charlie produces wonderfully fine reproductions of antique furniture and his list of customers would comprise a blue book across the country.

Fred Dierks, President of Dierks Forest, Inc., has been appointed Chairman of the Kansas City area of the M.I.T. Second Century Fund. . . . **J. Howard Cather** writes from Rochester, N. Y., that his bird feeder business is still active, since a small ad he placed in the Audubon Magazine has brought a large number of orders. He and his wife enjoyed a very wonderful six-week trip via B.O.A.C. last spring to Tobago and Barbados, where he studied the "local birds." Liz and Howard are planning to come East for our 50th. . . . No word yet from Carolyn and **Johnnie Noyes** who are on the Caronia visiting the Mediterranean and Black Sea. Hope they are not

held up in Czechoslovakia.—**Frederick J. Shepard, Jr.**, Secretary, 31 Chestnut Street, Boston 8, Mass.; **John Noyes**, Assistant Secretary, 3326 Shorecrest Drive, Dallas 35, Texas.

'13

Your Scribe's face is now a very dark shade of red as he reviews the latest issues of The Review which show no notes for the Class of 1913. Time surely waits for no man. In the early part of April, I established a branch office for Town and Country Homes at Hull, Mass., then the first of June I was transferred and set-up a branch office at Dedham for the same concern. It has been necessary to labor every day and many nights, supervising office routine and training several new sales people. As the result of confining efforts several of those virus bugs caught up with me. This, together with failing eye-sight, caused my duties as your secretary to be neglected. Well! Now good health appears just around the corner, so you may expect a regular report (I hope, monthly).

We have received several notices issued by the Alumni office which announce the deaths of some of our beloved classmates. It is with a very heavy heart that we report the passing of **Walter R. Bylund** at Yonkers, N. Y., on March 28. Walt served as an engineer as a first lieutenant in World War I, attached to the French Army in the Oise-Aisne offensive, and with the U.S. Army in the Argonne-Meuse offensive. He was employed by the General Motors Corporation in Europe and Java. From 1932 to 1938, he was associated with the New York Port Authority and assisted in the building of the Triborough Bridge. Since 1939, Walter has been engaged as an engineer, actively and later as a consultant with New York office of the Army Ordnance Corps. To Mrs. Bylund and his two sisters we extend our deepest sympathy in behalf of all members of 1913.

With great reluctance we must inform you that our dear classmate **Stanley H. Davis** went to his maker on February 29 at Fort Lauderdale, Fla., while on a vacation. Stan, as an electrical engineer, on leaving Tech, helped convert many buildings in Toledo from gas to electricity. He served in the Navy in World War I. In 1918, he founded and was president of the Stanley H. Davis Paper Box Company and invented several automatic paper box machines and became one of the most successful manufacturers in his field. He was a member of Rubicon Lodge of Masons, Vernon McClune Post of the American Legion; Collingwood Temple and the Towne Club. To his dear wife, Rebecca, Mrs. Howard J. Franklin and family, we offer our sympathy, for we who knew Stan also feel a great loss.

Our appeal for dues did bring responses from Charlie Thompson, Arthur Brown, Bill Brewster, Jeff Rollason, and Gene Macdonald. To quote **Bill**, "As to 1961 reunion. I have no definite ideas. I am for whatever location will bring the largest attendance." . . . It was a very

interesting meeting of the Alumni Council at the Faculty Club in April, which your correspondent enjoyed as a guest of **Charles Thompson**. . . . **Geoff** (Jeff), as one of our best contributors, of both dues and news, feels that we should endeavor to make arrangements for the interim reunion on or near campus as voted at our 45th. He states that after a few days sojourn on the Cape, it is too strenuous to participate at Cambridge on Alumni Day. We, and **Frank Achard** are endeavoring to carry out the wishes of the Oyster Harbors' vote, but to date we have been unsuccessful in making such arrangements. We would call your attention to the 1910 Class Notes in the November issue of The Review, where Herb Cleverdon describes his class's reunion at a motel. Geoff also reports that he and Marge have made three trips to Australia since he retired in 1955, and will probably make their next trip in 1961 to the land "down-under." Thanks, Geoff. Write more often. . . . How about some news from some of you other retirees?

Of course, **Larry Hart** makes the headlines quite frequently in our Massachusetts papers in connection with Junior Achievement, Inc. His latest visit to our climes was in the early part of June at the Oak Hill Country Club of Fitchburg, where Larry was one of the featured speakers at a banquet of the J.A. of Fitchburg and Leominster, Mass. . . . On June 13, Alumni Day, with the regular visitation to the Institute; the luncheon in the Court; the President's welcome and address concerning accomplishments, with especial honors to 1910; the various demonstrations of the latest phases of scientific advancement; the get-together on the lawn (quite liquid); the Alumni Dinner; climaxed by the excellent ballet in Kresge; furnished the hordes of Alumni with much enjoyment never to be forgotten. Many of the regular 13ers were present, but many of you others were missed. We can account for: The Brewsters, the Capens, the Eichorns, the Gustins, the Muthers, as well as Achard, Cameron, Cushing, Glancy, and Terry.

Lest we forget, kindly bow your heads in prayer for our dear classmates who have left this mortal world and now rest in heaven: **Adolphus W. Greely** in 1956; **Charles D. Duffy** on April 8, 1957; **Fay B. Williams** on January 10, 1960; **Tracy V. Scudder** on May 28, 1960; **Howard F. Sutter** on January 22, 1960; **Raymond S. Braly** on January 24, 1960; **Austin K. Wardwell** on February 19, 1960; **Joseph L. Donaldson** on March 27, 1960; **Francis B. Morton** on June 14, 1960; **Arthur K. Adams** on July 27, 1960; Prof. **Arthur F. Taggart** on August 22, 1960; Dr. **Arnold P. Sturtevant** on September 17, 1960. If any of our classmates have any details in regard to the above deceased friends we shall be very glad to report them.

Our good friend **Robert Weeks** was stricken in the early days of July on his way to Maine. He was rushed to the Massachusetts General Hospital where a very serious operation was performed in the vicinity of his brain. His dear wife called me and I had the pleasure of visiting him. He recovered rapidly and sometime in the middle of August returned to his home. We have been informed by his

sister, **Dorothy, M.I.T. 1923**, that Bob's recovering gradually and it is hoped that he will be back to normal before long.

Well, my good boys and girls, we hope that you will take that pen in hand and send us just a few notes about your present activities. Remember this is the year that your alma mater celebrates its 100th Anniversary. Don't you want to attend your 48th?—**George Philip Capen**, Secretary and Treasurer, 60 Everett St., Canton, Mass.

'14

Our news items this month seem to be rather scarce. Perhaps it is because Fourteeners are trying to think up ways of getting together some money to help **Herman Affel** raise the needed amounts for our class funds. All contributions are credited to the Second Century Fund as well as to our Fifty Year Fund, which is almost around the corner. Do you recall at graduation time how far away our Fifty Year celebration looked?

Two of our classmates have just had sessions at the Maine Medical Center, and strangely enough, both were there at the same time. Fortunately **Dean Fales** is now back home and **Charlie Fiske** is about ready to return home. Charlie, as you know, had for some time been bothered by his back. He had a disk operated on and now the doctors assure him that he will be able to run his motor launch again with comfort and pleasure. Fourteeners all extend best wishes to Charlie and Dean, and hope that by the time these notes appear they will have had full recovery. Dean must be well on the way to recovery now, because he has already collected a fine group of hospital stories. —**Harold B. Richmond**, Secretary, 100 Memorial Drive, Cambridge 42, Mass.; **Charles P. Fiske**, President, Cold Spring Farm, Bath, Maine; **Herman A. Affel**, Assistant Secretary and Class Agent, R.F.D. 2, Oakland, Maine.

'15

To all classmates and their families, sincere wishes that you enjoyed a Happy Holiday Season and all the best for good health and good cheer this year. What a Class! At the October 14th class dinner at the M.I.T. Faculty Club, 23 classmates and their guests set an outstanding attendance record. After cocktails and one of Bill Morrison's delicious dinners we had a pleasant evening reminiscing over our 45th last June. It was unanimously agreed we all enjoyed a swell reunion. Many want to hold our 50th at the same place—Snow Inn, Harwichport on Cape Cod. We'll see! The class picture has finally been mailed and we hope you all like it. Preceding the dinner, the Class Executive Committee met and decided to explain in a letter to all the class the areas of giving: the Annual Alumni Fund; the 1915 Fiftieth Reunion Fund; and the Second Century Fund. It is hoped this will clarify any misunderstanding or uncertainties on these. At the dinner **Max**, **Ben** and **Jack Dalton** each gave a brief

resume of his work for the class and M.I.T. in each of these areas. **Larry Landers** has again set up our annual New York City Class Dinner for Friday, January 27, 1961, at the Chemists Club. This has become an outstanding and much looked for class party each year and the big crowd planning to go down from Boston are expecting to see an even bigger crowd from metropolitan New York. That work-horse, **Bur Swain**, will cooperate with Larry to make this another rousing success. Plan to be there with us.

Long distance men at the Boston dinner were the Lowell twins, **Reggie Foster** and **Chet Runels**; **Al Sampson**, Beverly; **Lou Clements** and **Max**, Framingham; **Charlie Norton**, Martha's Vineyard (second prize) and the winnah, **Ben Neal**, Lockport, N. Y. We were delighted to have Ben with us. Story telling closed the dinner and then a few of the fellows came over to our apartment at 100 Memorial Drive to visit with Fran. Charlie Norton was our house guest. All in all, a grand evening with grand fellows. Present at the dinner: **Larry Bailey**, X; **Bill Bracket**, VI; **Lou Clements**, Jack Dalton, I; **Sam Eisenberg**, IV; **Reggie Foster**, X; **Larry Landers**, X; **Azel Mack**, X; **Archie Morrison**, II; **Ben Neal**, X; **Charlie Norton**, II; **Wally Pike**, I; **Pirate Rooney** (of course); **Chet Runels**, IV; **Al Sampson**, V; **Frank Scully**, I; **Bill Sheils**, Ed Sullivan, II; **Fred Waters**, II; **Easty Weaver**, XIV; **Carl Wood**, I; **Max Woythaler**, V; **Louie (Be Sharp) Young**, VII. Of course, **Lou Clements** (who comes with Max) and **Bill Sheils** are now regular members and no longer considered guests. Many of our regular attendees sent regrets: **Doug Baker**; **Jerry Coldwell**; **Wayne Bradley**; **Sam Berke**; **Otto Hilbert**; **Jim Hoey**, President, '43; **Ernie Loveland**; **Stan Osborne**; **Bur Swain**; **Speed Swift**. We were sorry not to see them.

With an excellent picture of Ted, the "Portland Press Herald" on August 4, 1960 said: "**T. F. Spear**, Oxford Paper Company's vice president in charge of public relations, will retire August 31. He has been with the firm 41 years, first as assistant to the superintendent of the Rumford mill and later as mill manager. He has been vice president in charge of public relations since 1953. Spear is a native of Boston. He was graduated from Massachusetts Institute of Technology in 1915 with a degree in chemical engineering. During World War I, he served with the Army Chemical Warfare Service. He is a director of the Rumford Community Hospital, the National Association of Manufacturers, the National Safety Council and the Maine State Chamber of Commerce. He is past president of the Maine Hospital Association and the Associated Industries of Maine and is a trustee of the New England Higher Education Assistance Foundation and of Portland University. He plans to continue to make his home here after his retirement." All the best to Ted for a long, happy retirement. We were all delighted to see him at the Reunion.

How you going to keep a good man down? Just read what **Jerry Coldwell**,

although retired, has done. From a Bronxville, N. Y., newspaper: "E. S. Coldwell of 2 Stoneleigh, Alger Ct., Bronxville, together with 49 other members of the Defense Orientation Conference Association, left New York on April 30 on a two-week 10,000-mile tour of Europe to visit NATO and U.S. European Command headquarters, and observe operational demonstrations at military commands in Europe. The group, representing an occupational and geographical cross-section of America, is making the trip entirely at their own expense for the purpose of viewing first-hand the military organizations and defense concepts of our forces in Europe, and to gain a broad personal understanding of this vital phase of the defense system. The first two days of the tour were spent in Paris where the group was briefed on the overall organization and missions of the North Atlantic Treaty Organization, the Supreme Allied Command Europe, and the United States European Command. The group then began visits to European headquarters and field installations of U.S. Army, Air Force and Marine Corps commands for further briefings and observation of operation. The group will return to New York on May 15. All members of the group have been guests of the Secretary of Defense at one of the Department of Defense's Joint Civilian Orientation Conferences during the past 12 years. In 1952 a group of these leaders in civilian activities, who had participated in the JCOC, formed the Defense Orientation Conference Association as a private organization in order to continue currently the education of its members as to matters pertaining to national defense, not only to facilitate their understanding thereof, but to enable them, to the extent possible within the limitations of security, to pass on such information to others. Membership in the association is a personal privilege, restricted to those men who have participated in a Joint Civilian Orientation Conference. While the Association is completely independent and is not sponsored by the Department of Defense, it was founded in order to provide a permanent medium for continuing interest of its members in the national defense. Mrs. Coldwell accompanied Mr. Coldwell, and is visiting spots of interest in various cities while he is attending the briefings and operational demonstrations."

Jerry's supplement to this clipping is rather reassuring for us stay-at-homes: "We flew out of Idlewild Saturday afternoon April 30 for Paris, then to London, Wiesbaden, Berlin (West & East), Heidelberg, Nurnberg, Naples, Madrid and home. While in Naples I went out with the Sixth Fleet. It was a pretty rugged trip as there were official receptions nearly every night and we were up early every morning, in my case at 4:40 two mornings. My average for the entire trip was just under 6 hours sleep per night. I came away with an excellent impression of our military in that part of the world. They know what they have to do in an emergency and are well equipped and prepared to do it. We can be very

proud of them." Thank you for the letters.

Living here, naturally I regularly see a lot of our Boston crowd. In addition Fran and I socialize and visit many of the local classmates and their families. This included a **Harry Murphy** birthday party with his delightful family, charming wife Lucille and 5 gay children. Then, in the summer we went up to visit these retirees at their "country estates," old farms they have bought and are up-building: **Lovell Mason**, Milford, N. H.; **Doug Baker**, East Middlebury, Vermont; **Phil Alger**, Rumney, N. H.; **Boots Malone**, Chester, Vt. Then we spent a weekend at **Wayne Bradley's** "Forty Acres Inn," Pike, N. H. There's a place to go for a comfortable, quiet and luxurious visit. Wayne has done a big job with this and has everything there from scenic beauty to ping-pong to make your stay enjoyable. Drop him a note up there for a reservation next summer. At Steele Hill Inn, Laconia, N. H., we met **Thayer MacBride** and his wife and expect to see them at their pretty place in Cohasset, Mass. **Jac Sindler** and I had lunch in Framingham with **Max and Wink**, both semi-retired from **Hodgman Rubber Co.** **Archie, Fran** and I had a gay evening in Beverly, with **Anne and Al Sampson** at their pretty place, which Al has beautified with some really professional horticulture. After the **Reunion Sol Schneider** stayed in Boston to visit with some of the boys. **Fran** and I thoroughly enjoy these pleasant visits with old classmates and their families and we warn you chaps in other parts of the country to keep that cracked ice cold, we'll be seein' you, too!

Frank Murphy has retired to 324 Lakeview Drive, Sebring, Fla., and will welcome any visiting Fifteneers. . . . Congratulations to **Allen Abrams** for this high honor. The Washington and Jefferson College Alumni Bulletin, April 1960 reported: "The election of **Allen Abrams**, member of the Board of Trustees, to Phi Beta Kappa has been announced by the Kappa of Pennsylvania Chapter of the organization. Mr. Abrams has had a distinguished career in chemistry as teacher, researcher, and industrialist. He is a director of several companies and has served a number of civic, cultural, and philanthropic enterprises, among them the Boy Scouts of America, the Wausau Board of Education, the Wausau YMCA, the Wisconsin Academy of Arts, Sciences and Letters, the Wisconsin State Historical Society, and the International Council of Religious Education. He is a life member of the board and in 1937 received an honorary doctorate from the college." . . . Our Nomads continue. **Reggie and Joe Foster** sent us an alluring Waikiki Beach card from Honolulu in September. . . . **Bur Swain** and his "associate" **Joanne** (his wife) were in Myrtle Beach, S. C., for September. He wrote: "I do not know what kick anyone gets out of a farm. But them that likes it, O.K. with me. You did not remark on the farmer's health. I hope W. Bradley's Inn won't lean on him too heavily. Good luck and health. What a Reunion! Great."

This long hand letter in ink, from **Herb Anderson**, shows how far and

steadily he has recovered from his recent tough experience and we're all glad to know the good news: "What a coincidence. Last month Alice and I stayed at the Inn at Steele Hill in Laconia for three days on our way down from Christmas Cove, Maine. A good place to rest and excellent food. I was very happy to get the news of your New England trip. We would like very much to go by steamer to Japan and parts in the Far East but are so restricted in our plans to be away. Perhaps you can both come down this way before you go away again. The early fall is pleasant in Pennsylvania and if the weather follows the precedent of last year our pool will still be in operation. The hurricane took its toll of many of our nice trees but fortunately there are enough so that only we who have lived with them for years will miss them. Of course these tree people have fancy ideas on the value of their services. Tree 'surgeons' and you know the surgeons' scale. I spend a few hours of each week at business to keep out of Alice's way in addition to keeping in step with the times. About two hours on two days per week does the trick. My best to you both and of course to all those very considerate classmates who so kindly remembered me by card and letter during the dark days."

When we were at Steele Hill Inn, **Swiftie** came over from his near-by estate at New London, N. H., for lunch and the afternoon with us—a thoroughly happy time together. He was the perennial youth outfitted in his red beret with that new red and chromium trimmed convertible with the musical horn and "SWIFT" number plate. . . . It's sad to report the passing of **John Monohan, I**, who died October 20, 1952 in West Chelmsford, Mass., and **Raymond R. Weaver, VI**, who died August 31, 1960 in Essex Falls, N. J. The sympathy of our class goes out to the bereaved families of these men.—**Azel W. Mack**, Class Secretary, 100 Memorial Drive, Cambridge 42, Mass.

'16

Van Bush has a most interesting article, "The Impending Revolution—Machines to Free Men's Minds" in the Rotogravure Section of the October 30 issue of the Boston Sunday Herald that has been sent out to Alumni with special reference to M.I.T.'s Centennial in 1961. This is must reading for the wide-awake. There's a good looking picture of young Van in the 30's, adjusting the "product integrator," the forerunner of the modern computer, developed by him with **F. G. Kear**, **H. L. Hazen**, **H. R. Stewart** and **F. D. Gage**. As most know, Van is Honorary Chairman of the M.I.T. Corporation, former Dean of the M.I.T. School of Engineering, former President of Carnegie Institution, and was Director, OSRD, in World War II. In the center of the same publication, there's an impressive picture of the Members of the M.I.T. Corporation, which includes three '16ers: **Van Bush**, **Steve Brophy** and **Bob Wilson**.

Flipp Fleming and his wife, in a group of 10, took a two-week tour from Akron to Emerald Lake, Lake Louise, Banff, Waterton Lake and Glacier National Park. He writes: "We went both ways by train, and after getting off the train, we toured around in private cars. Had nice weather and beautiful scenery. It was a very interesting trip." Flipp's son, Bill, graduated from the Graduate School of Banking at Rutgers University last June. He is with the Republic Bank in Dallas, Texas. . . . Back in October, we had word that **Steve Berke** had had a heart attack last summer and had spent most of the summer down on the Cape. We were glad to hear that Steve was then (October) up and around although on a restricted routine.

It's a long time since we've had word from **E. B. Johnson** but word came from him in Monroe, La., early in November. He retired the first of 1960 after 31 years' service as Chief Public Health Entomologist with the Louisiana State Board of Health. This job kept him traveling but made it necessary for him "to curtail a lot of social, civic and religious activities at home." He now finds great pleasure in doing some of the things mentioned in the Class Notes: "Like **Larry Knowlton**, digging in my garden; and like **Russ Lowe**, making a complete job of retiring. The difficulty is, I can't do all I want to do with the days only 24 hours long!" Says he has seen very few '16 men down his way. He has talked with **Vert Young** on the telephone, and was glad to help Vert in one of the canvasses a few years ago. He mentions that the only other recent contacts were **Clare Turner**, '17, who was both instructor and fellow student in old Course VII and was in Monroe a few years ago, and "Bill Brown, '15 whose son married a girl we knew." Both E. B. and his wife are in good health and are enjoying their daughter **Sallie**, and their grandchildren, **Douglas** and **Pamela**. He seldom gets to Boston, has seen M.I.T. only four times since 1916, but we're hoping he'll make it the fifth time in June at the 45th.

Elmer Wanamaker writes from Knoxville, Tenn.: "Since retirement late in 1958, my wife and I have enjoyed trips to Mexico and the Maritime Provinces of Canada and have plans for other places in the coming year." Feels it is doubtful he can attend the Reunion but will keep it in mind.

Bob Wilson, as Commissioner of the A.E.C., was one of the speakers at the Second National Youth Conference on the Atom, in October, at the Shoreland Hotel, Chicago. The purpose of the conference was to present to a group of the nation's most able high school science students and teachers, an authoritative and inspiring picture of the peaceful atom and its various applications, and to help advance interest in the study of science in the U.S.A. He compared peaceful and military applications, and discussed the need for resuming underground testing of weapons without appreciable delay "unless we promptly achieve an agreement providing for adequate mutual inspection, which we have tried in vain to obtain for the past two

years. Such tests would not involve any atmospheric contamination or fallout, though the seriousness of that has been greatly exaggerated in the public mind." This is a most interesting and timely presentation. You could probably get a copy by writing to Bob at the A.E.C., Washington 25, D.C. A news release on October 28 also announced: "U.S. and British Officials to Meet Oct. 31 and Nov. 1 to Review Progress of Information Exchange on Atomic Energy for Mutual Defense." Senior U.S. representatives of the meeting in Washington "will be Commissioner Robert E. Wilson of the A.E.C. and Major General Herbert B. Loper, Assistant to the Secretary of Defense for Atomic energy."

Jap Carr, writing from Buck Hill Falls, Pa. in October said he is usually looking in Wilkes-Barre by mid-September but stayed on this year as he was running a round robin tennis tournament which he started as a fall "fun" gathering three years ago. They had 80 people, all tennis enthusiasts, back for it, so it took a lot of organizing. Jap is in the preliminary organizing state as chairman of the 1961 Red Cross Campaign for funds in Palm Beach, where he goes for the winter. He notes: "Seems I did too well in one of the lesser jobs and so the willing horse got another job. The greatest problem here is to find one of the Palm Beach women willing and able to run the Red Cross Ball for about 350 people, that being the most successful money-raising device in South Florida. I seem to keep busy in retirement. In the North I go to Wilkes-Barre one day a week to attend a bank directors meeting and take care of odds and ends of personal affairs. The other six days find me on the tennis courts several hours a day. Getting ready for really old age, I started this fall bowling on the green. The Buck Hill champion is 78 years old so you see one has lots to look forward to in that sport." We can hardly resist laying a bet that Jap will be the Buck Hill champion, not only at 78, but at 88!

Charles Crosier, Assistant Secretary, Claim Department, of the Aetna Casualty and Surety Co., retired on August 31 under the company's retirement plan after 33 years service. He joined Aetna in 1927 after a number of years in the engineering field. According to the Sept. 2 issue of *The Standard*, Boston, "Mr. Crosier is a member of the board of Connecticut's Capital Region Planning Authority. In Rocky Hill, Conn., where he resides, he has been chairman of the Charter Commission and Finance Board and is a past president of the Lions Club."

John Gore retired from Beechnut Life-savers last April after 39 years with the company. By request, he stayed one year beyond the normal retirement date. But now he finds real pleasure in being free to do just about what he wants to do. He's still active in the Boy Scouts organization as he has been for the past 30 years. As for hobbies he is still much interested in the out-of-doors—birds, flowers, etc. He says: "We like to travel around, especially in New England. Having been born and brought up in a suburb of Boston, the salt water and sea air

are in my blood so we have to get back to the coast occasionally (Cape Cod and Rockport, Mass., are our chief haunts)." The 45th is on Cape Cod; we'll see him there.

We have received from **Dick Berger** a copy of his latest release, H 8 with the title: "Cancer—It's Murder." Dick, as President of Cancer Prevention, Inc., of Bridgeport, Conn., since way back in the 30's, has some pretty startling items in this release and it is worth careful reading. As a matter of fact, he'll be glad to send a copy to anyone from Tech who reads this column. Just write to him at 1928 North Ave., Bridgeport 4, Conn. Include a return addressed envelope to aid him in handling the volume of mail he receives.

Emory Kemp keeps busy and forward looking. He and Mrs. Kemp plan to go to Siesta Key at Sarasota, Fla., early in January and stay through February. Driving home early in March they expect to stop off to see the **Arvin Pages** in Winston-Salem. Emory's little town of Wellfleet (1300 souls) is undergoing a transformation. Last March they lost their lovely Town Hall by fire and a new one is just being started. A larger P. O. is going up, the main street is being widened and resurfaced, and with the newly completed marina, town wharf with over 100 slips for mooring yachts, they have something to be proud of. Workwise, Emory has drawn plans for some cottages for one of the town's building contractors. He had just visited **Freeman Hatch** in Eastham and writes: "He has a wonderful set-up—about 9 cottages for rent—and lives in a lovely cottage on a pond with a beautiful setting." Also, on a trip back from Pocasset, Emory spent a couple of hours with **Jack** and Mrs. **Burbank** in their home in Marstons Mills. Says: "Jack is playing golf daily and has been exercising his hunting eye shooting squirrels detrimental to his property. He looks wonderful. A very lovely couple!" Emory winds up with the observation that this is what makes a "feller" feel ancient: When your granddaughter graduates from the University of Massachusetts, gets a teaching job, marries, and settles down in Agawam near Springfield where her husband teaches.

Berthoud Boulton joined the ranks of the retired in August '59 and set himself up to complete several satisfying tasks requiring manual skills. The first was the design and building of a carport, a project that required learning how to lay bricks. The second was the design and construction of a sailing canoe, a project that forced him to learn how to steam bend oak ribs accurately. Both outcomes were quite satisfactory, he says. Last June he went camping with his son on the beautiful Lake of the Ozarks. But he hasn't given up thinking, for last winter he gave by invitation a series of lectures on orientation to the freshman engineering class at Washington University, and recently gave a couple of lectures at Parks College in St. Louis. Last March he became a Red Cross Volunteer, a "Gray Man," working at the Veterans Hospital. There he spends two days a week working with men in the wood shop in the

mornings and teaching a small group math and strength of materials in the afternoon. A truly commendable contribution, say we! Next spring, he and his sister, with whom he lives, are planning to take a two months' trip to Europe via Holland American Line. Says: "We plan to buy a small car in Paris and tour through France, Italy, Austria, Switzerland, and Germany and ending with a week in England." And he closes with "Au revoir," proving that he is seriously acquiring some French for the trip.

Francis Stern writes about fishing, saying that every class has to have at least one "nut" and that '16 could consider him just that on "fishing." He's one of a group of 18 that owns six and one-half miles of trout stream together with a club house where they keep a couple on an annual basis in the Poconos in Pennsylvania. He says: "Before my retirement I used to get down there weekends, sneaking away Friday having to drive late Friday night and getting home Sunday night in time to go to work Monday morning. However, even then I cheated a little bit, and it was frequently Monday noon before I got back. Now the necessity of cheating has been removed, I find that three days one week and four days the next week seem to be about average." Pennsylvania fishing sort of "peters out" the end of June, so in keeping with a practice of many years, four of them go up into Canada for salmon fishing, where a lease on one of the tributaries of the Restigouche affords "fabulous fishing" in July. "Although fishing as a whole was poor this year, we did very well—our salmon ranging from 18 to 28 pounds. August is broken up between Hartford and Martha's Vineyard and I got there just in time for the start of the blues, where we established the record for a day's catch, for two of us hit a school one day that really produced a lot of fish." The end of September found Francis up on the Miramichi in New Brunswick, but lack of rain and a dwindled-in-size river were responsible for a poor week's fishing. But, Francis does other things—we'll tell about them some other time—Trustee of some estates, on regional and National boards of Junior Achievement, etc.

Ed Barry writes from Needham where he and his wife live alone and in good health. As he says, although he's old enough to retire, he is still in harness as a mechanical engineer with a small consulting firm owned by Kerr Atkinson, with offices in the Statler Building, Boston. They specialize in power plants for industries and small utilities and do general mechanical and electrical engineering work. He and his wife spent the summer of 1959 touring Great Britain by auto and found it a rewarding experience. They hope to do the same thing on the Continent some day. Their two sons are married. One has five children and lives in Michigan, so far away their contacts are less than they could wish. The other lives in Pittsfield, Mass., "so we see him and his wife often." Ed says he'll try to make the reunion in June.

We have word from **Marcel Gillis** in Waveland, Miss., right on the Gulf of Mexico, who sends his "just a couple of

lines." Back in August, 1917, he took a regular Army commission, 2nd Lieut. Infantry and served in the AEF in France, 8th RA Division. He was a Colonel, Infantry, June 1942 with headquarters 4th Army and retired in April 1946, Waveland, Miss. Says he's "been hunting, fishing and dreaming since then" and recalls that "Tech days were tough but worth it!" In 1921, in Paris, he married Marcie Caffery of New Orleans, La. Has a daughter, Mrs. Henry Restarick, living in Rome, Ga., and three grandchildren. He'd love to see any '16er who might happen down his way.

Doug Robertson continues on the go. His son returned to Taunton in 1957 after four years in the Army, to rejoin Doug in his business. Doug writes: "He married an attractive Taunton girl while attending Babson and they now have two boys and a girl. The girl was born last January. We were very proud grandparents last summer at Mattapoisett where John bought a cottage next to ours." Last spring Doug and his wife with another couple visited the Hawaiian Islands, Japan, and Hongkong. He called it a surprising trip in contrasts of scenic beauty and industrial development—everybody very busy and working hard. In the middle of last summer, Doug had to leave Mattapoisett for a short trip to England and Switzerland on business. He remarks: "Made me appreciate Buzzards Bay in summer. Looking forward to our 45th on the Cape next June."

Ernest Gagnon was able to recognize **Hal Gray** in the June Reunion picture but says "he is a lot grayer than when I saw him last, perhaps 30 years ago." He has resigned as president of the bank in Hurlsboro, Ala., but has been helping out in an advisory capacity, in fact, putting in about as much time so far as he did as president. He made a trip to Scarsdale, N.Y., and Lynn, Mass., in September and October. In Swampscott he spent a couple of hours with **Ed Jenkins** who, he says, seems well. During the winter he expects to make a trip or two to Florida, etc.

A report from **Jim Evans** says that '16 was outnumbered by '17 at the November monthly class luncheon in New York City. Jim plus **Len Stone** plus **Herb Mendelson** were, however, in good company with '17ers who included Messrs. Proctor, Lowengard, Brooks, Littlefield and Neuberg. These luncheons are held on the Thursday following the first Monday of each month in the M.I.T. Club of N.Y. rooms in the Hotel Biltmore, next to the Grand Central RR Station. Mark your calendar for Thursday Jan. 5, Feb. 9, and March 9, and join the group for lunch if you are in New York. We understand the membership of the Club includes a large number of alumni who live in cities other than N.Y.C. but who nevertheless find the club's facilities well worth the nominal annual dues. Howard Bollinger, '43, chairman of the Membership Committee says joining is simple—just drop a line to the club, address Biltmore Hotel, N.Y. 17, N.Y.

In concluding the column for the current month, we have three messages.

(1) Help keep the column full by sending in your news-bits.

(2) Plan now to attend the 45th Reunion at the Oyster Harbors Club, Osterville, Cape Cod, June 9, 10, 11—and note that wives are invited.

(3) Be assured of the best wishes of all your class officers for a prosperous and healthful New Year!—**Harold F. Dodge**, Secretary, 96 Briarcliff Rd., Mountain Lakes, N. J.; **Ralph A. Fletcher**, President, Box 71, West Chelmsford, Mass.

'17

A Du Pont news release of October 27 reads as follows: "**Howard S. McQuaid**, planning manager of the Du Pont Company's Industrial and Biochemicals Department, will retire at the end of October after a career of more than 43 years in the chemical industry. Mr. McQuaid joined the Grasselli Chemical Company in 1926, two years before it was acquired by Du Pont. Starting as a research chemist at the Cleveland plant, he held various supervisory positions in manufacturing and sales at the Cleveland and East Chicago plants. In 1937 he was transferred to Wilmington in a sales capacity for the Grasselli Chemicals Department. Appointed planning manager in 1952, he continued in that capacity when the new Industrial and Biochemicals Department was formed last year, participating in decisions leading to the expansion and growth of the department. Immediately after graduation from M.I.T., he joined the Atlas Powder Company in Wilmington as a research chemist. Three years later, he went with the U.S. Government in the Chemical Warfare Service at the Edgewood, Md., Arsenal. He later became assistant head of the Industrial Division of the Chemical Warfare Service."

Ed Payne, who is a Communications Systems engineer for the National Security Agency, reports a trip to Japan last spring. He was located in the vicinity of Tokyo for about six weeks. His comments concerning the trip follow: "Japan is a delightful country. Everything indicates painstaking labor and I don't need to mention their excellent engineering and industrial progress. Those of us who neither 'go native' nor remain U.S. provincials, get the most from seeing Japan. There is no hostility to Americans as individuals that I observed. The fear is that the Japanese may be caught in a war between the United States and Russia."

Ray Stevens reports by post card a three weeks' trip in A. D. Little's behalf through Brazil, Argentina, Venezuela, and Mexico. Ray has also found time to write a very learned article entitled "Frank Words on Contract Counsel and Research" which A. D. L. has distributed to its clients and friends.

The Chairman of the membership committee of the M.I.T. Club of New York (Howard M. Bollinger '43) has requested all class secretaries to notify classmates that the membership of the N. Y. Club currently includes a large number of alumni who live in cities other than New

York, but who nevertheless find the club's facilities well worth the nominal \$12.50 annual dues. The club is open from 10:30 A.M. to 7:30 P.M. every weekday. Special luncheons and dinners can be arranged. There is a daily club table for those who come alone for lunch. The club is on the first floor of the Hotel Biltmore, and is a convenient meeting place for those who do not have club or other business accommodations.

Since retirement for members of our class is consuming space in these notes, your secretary has been saving the following for a month in which news is scarce. It goes: "RETIRED—HERE IS YOUR DAY. 7:00 Wake up and laugh at silent alarm clock which has been turned off the night before. 7:00-7:01 Brisk calisthenics while lying in bed. 7:01-9:00 Go back to sleep. 9:00-9:30 Debate whether to shave. Decide not to. 9:30-10:00 Read newspaper and have breakfast. Bourbon, toast, bacon, eggs and coffee. 10:00-11:00 Give wife orders of the day, and point out her errors of the day before. 11:00-11:15 Coffee and Bourbon break spent resting on sofa. 11:15-12:15 Front porch rocking chair session. Make plans on how to spend tomorrow in constructive way. 12:15-12:30 Highballs with next-door neighbor. 12:30-1:30 Lunch. Beer, beef sandwich, apple pie and cheese. 1:30-1:35 Read good book to improve mind. 1:35-3:00 Nap on sofa. 3:00-3:15 Coffee and Bourbon break."

The next part of the schedule is entitled "IN THE ROCKING CHAIR: 3:15-4:45 Back porch rocking chair session to get benefit of afternoon sun. Review morning's plans for tomorrow. Decide tomorrow is a bad day to start any new project. 4:45-5:00 Inspect vegetable garden, point out to wife areas where she should do more hoeing. 5:00-8:30 Cocktail hour. 8:30-9:30 Dinner. Wine, sirloin steak, salad, mashed potatoes, gravy, and ice cream. 9:30-11:59 Discuss with wife why world is going to hell; lay out her work schedule for next day. 11:59-12:00 Write postcard to boss saying how much you miss the old office gang, and you're champing at the bit to get back. 12:00-12:01 Go to bed with second good book of day to improve mind. 12:01 Throw book out of window and fall asleep." . . . I wish to thank the classmate who sent in the above. Sorry, but his name failed to be recorded. —**W. I. McNeill**, Secretary, 107 Wood Pond Road, West Hartford 7, Conn.; **Stanley C. Dunning**, Assistant Secretary, 1572 Massachusetts Avenue, Cambridge 38, Mass.

'18

Men who are outstanding in their professional achievement usually have fun at full gallop in what they are doing. **Bill Wills** must have chuckled many a time at the free advertising he has received from many sources. I have received copies of the October American Home, the October Good Housekeeping, and the current New England Architect and

Builder, all of which contribute liberally to the above chuckles. This column has often done its share in contributing to Bill's mirth, so we canter along to other matters. . . . **Harold Weber**, who retired from the faculty last June, has needed a sense of humor to survive as a long time member of the Army Scientific Advisory Board. It is composed of 60 of the country's leading scientists, engineers, industrialists and educators. The panel assists the Secretary of the Army and the Chief of Staff in their joint responsibility to give the U.S. a ground fighting force as effective, economical and progressive as scientific, technological and industrial resources permit. Harold was one of the horsemen present at the fall meeting held at the Fort Knox, Kentucky, Armor Center. No saddle sores are showing from his doctor of science degree in applied chemistry awarded by the Eidgenossische Technische Hochschule, Zurich, Switzerland, in 1935.

A postcard informs us that **Fred Philbrick** was in Germany in September, even venturing into East Germany after riding with somewhat greater confidence through Vienna which was once the gayety capital of the world. When last heard from he was headed for London and Birmingham. . . . Turning our own Pegasus in another direction, the National Life Insurance Company has a new multi-million dollar office building in Montpelier, Vt. **Roy Johnson** rode herd over its construction crew. The trails which led hither began at Dartmouth, included M.I.T., fretting with the ground forces at Kelly Field, Texas, with a lieutenant's bars, and detoured via his father's publishing business in Randolph, Vt. In 1924 he bought the Buck Printing Company there, but 13 years later joined the staff of National Life as its purchasing agent. That's when his career reached the fun at full gallop we've been talking about and he was soon a vice-president in charge of all kinds of expenditures. He has four children, has been president of the local Rotary Club, commander of his American Legion Post, chairman of the Randolph School Board for 11 years, and moderator of the town meeting. At full gallop one can cover quite a lot of territory.

From the M.I.T. Club of New York has come a pleasant invitation for all the brethren to join, with modest annual dues of \$12.50. When in New York visit their quarters in the Biltmore Hotel at 43 and Madison Ave.—**F. Alexander Magoun**, Secretary, Jaffrey Center, N. H.

'19

Will Langille has been appointed chairman of the Board of the Diehl Manufacturing Company, a subsidiary of the Singer Manufacturing Company. Will has been with Diehl since 1920. He was elected vice-president in 1940 and has been president since 1954. . . . On October 1, **Harold M. Putnam** of Medford retired from his position as an estimator in Bethlehem Steel Company's Boston sales office. He had been with the com-

pany since 1925. . . . **Carl G. Polson** was honored at a testimonial dinner in Brockton, Mass., when he retired as distribution superintendent of the Brockton Edison Company last fall. Carl has been with the company since he graduated from school. Nearly 200 friends and associates attended the farewell dinner.

Morton A. Smith, of Great Barrington was presented with a pin and scroll honoring his 36 years of perfect attendance at meetings of the Rotary Club of Great Barrington. . . . **Bernard S. Coleman** has been named as one of the 15 representatives from Los Angeles County to the House of Delegates of the California Tuberculosis and Health Association. . . . We are pleased to note that **Walter Turnbull Hall**, son of **Walter T. Hall**, '19, is a member of the Freshman Class at the Institute. . . . **John H. Nelson** has moved from Washington, D. C., to Lovettsville, Va. . . . The new address for **Mrs. Raymond Newcomb** is 12A Sudbury Rd., Concord, Mass. . . . **Charles Chayne** was one of the speakers at the General Motors Educational Relations conference for junior and senior high school counselors.

Do you all realize the advantages of membership in the M.I.T. Club of New York? The headquarters of the club are located in Room 100 at the Biltmore Hotel, and right at Grand Central Station. The club has its own bar and private dining room, with food supplied by the hotel. It is a most convenient, central meeting place and a quiet pleasant place for your personal and business get-togethers. Dues are reasonable, with special rates for out-of-town members.—**Eugene R. Smoley**, Secretary, 30 School Lane, Scarsdale, N. Y.

'20

Norrie Abbott has a new granddaughter, Suzanne Whitman Abbott. The proud parents are Mr. and Mrs. Norris G. Abbott, 3rd, of Providence. . . . **Charles E. Packard** is a professor at Randolph Macon College, Macon, Va. . . . **George R. McNear** has left New York City and is now in Duxbury, Mass. . . . **Amasa Castor** has left Manchester, N. H., and is in Fort Lauderdale, Florida. . . . **Frank Lawton** is with Texaco, Inc., New York City. . . . **John Hale** has moved from Portsmouth, N. H. to Chevy Chase, Md. . . . **Herb Krantz** is in Westfield, N. J., 4 Fernhill Road. . . . **Fred Crapo** is with the Indiana Steel & Wire Company, Muncie, Ind. . . . **David Flashman** is a doctor at the Foxboro State Hospital, Foxboro, Mass. . . . **Frank Foley** is in Yorkville, Ill. . . . **Henry Simms** is a doctor at Columbia University Medical School. . . . The Rev. **Franklin H. Blackmer** is in Urbana, Ohio. . . . **Garth Boyer** is with the State Corporation Commission, Richmond, Va. . . . **Joe Wiegand** is with the East Bay Realty Company, Oakland, Calif. . . . **Mel Powers** has left Bronxville, N. Y., and is in Orlando, Fla. . . . **Enoch Doble** has moved from Sandwich, Mass., to Delray Beach, Fla.

The M.I.T. Club of New York is expanding its already excellent services and facilities and welcomes any of our class as members. The dues are nominal, only \$12.50 a year for out-of-town members, so if you get to New York from time to time, this is a real bargain. The Club is at the Biltmore Hotel, 43rd Street and Madison Avenue, near the Grand Central Station. **Al Glassett** and **George Dandrow** have long been prominently identified with this successful and worth while enterprise.—**Harold Bugbee**, Secretary, 7 Dartmouth Street, Winchester, Massachusetts.

'21

Happy New Year! Happy Fortieth Reunion next June!

Reunion report: Our notable 1921 Class Reunion history has prompted Chick Kane '24 to illustrate things to come in the huge 180-page rotogravure section of the Boston Sunday Herald of October 30, 1960, which is devoted exclusively to the centennial of M.I.T. Sketched are an interstellar vehicle passing a signboard satellite marked "Welcome Old '21," on its way to Uranus, emblazoned with "21 Reunion" and the caption: "Wealthy Uranian Alumnus Invites 40-Year Classmates to Reunion." We are duly appreciative for this recognition of the pioneering accomplished by the Class of 1921 in setting new styles in M.I.T. reunions, as well as for this publicity in support of our coming big Fortieth Reunion next June 8 through 11. Please note, however, that the chartering of a spaceliner for the reunion of 1921 on Uranus has been scheduled for a later date. This year, we will arrive by more conventional means at the Hotel Mayflower, Manomet Point, Plymouth, Mass., on these June dates and then go to Cambridge, where special quarters are to be available for our attendance at the M.I.T. Hundredth Anniversary Alumni Day on June 12. Reserve these dates and be there with your wife and family.

Mel Jenney's Fortieth Reunion Committee has revealed a little about the distinctive shore club accommodations which the Mayflower has reserved for the Class of 1921, wives and guests. Ocean bathing, swimming in the pool, boating on the private lake, golf, tennis and all other sports, with top cuisine and the relaxing comfort of a luxury hotel all to ourselves, promise one of the most unusual opportunities for fun and fellowship which we have ever had. Special arrangements are under way to ensure that the ladies and guests are adequately welcomed to our friendly fireside. You have now received mail from the Reunion Committee and it is strongly urged that you return the questionnaire at once in order that you and your wife will be included in the final plans. Mail it now. For special information, write to Mel Jenney at the address at the end of these notes.

Albert E. Bachmann has retired and will live in Keystone Heights, Fla. Red

and Mrs. Bachmann were tendered a dinner last October at South Hadley, Mass., by his many friends in the paper-making industry. Most recently, Red has been vice president of the paper mill group of Standard Packaging Corporation, having previously served with Pibbscot Paper, American Writing Paper, Kimberly-Clark and Mississquoi Paper Companies.

Our outstanding writer, **David O. Woodbury**, has prepared a new edition of a book he originally published in 1944, "Elihu Thomson, Beloved Scientist." Brought up to date with new illustrations and a message from our beloved Jim Killian '26, the volume covers the life of this pioneer of the electrical age, a co-founder of the General Electric Company who, as acting president of the Institute, affixed his signature to our diplomas. The new volume is obtainable from the Museum of Science, Boston. Dave is also honored by his selection to prepare a leading article in that huge *Herald* supplement on Technology, entitled "When Tech Was Very Young; Then, as Now, the Secret was Knowledge for Use." He is introduced to readers as "... an electrical engineer and one of the leading science writers in the nation; the author of more than a dozen books and the son of the late Charles H. Woodbury '86, a leading New England artist and painter."

Other interesting sidelights in that big Technology magazine section include a Ford Motor Company advertisement which features a salute to the Institute as "one of the truly great centers of education for leadership," on behalf of a long list of alumni, including **Alexander J. LaPointe**, Supervisor of Manufacture of the Technical Services Department of the Ford Division. Unfortunately, **Gus Kinzel** was unable to be present to add his good looks at the time the photograph was made of the impressive group constituting the Corporation of M.I.T. Fabric Research Laboratories, in its corporate salaam to Technology, offers congratulations from **Walter J. Hamburger**, one of its founders. Nelson C. Less '53, son of the late **Connie Nelson Lees** of our class and Malcolm Lees '20, is hailed as the "M.I.T. Reporter" on a television science series, one of which is on view as we prepare these notes. Ned is also the new editor of the M.I.T. Observer, a refreshing publication in which we take pride for having suggested its creation. Curiously, the advertisement of the Manufacturers Mutual Fire Insurance Company transfers to the Class of 1921 its vice president and long-time president of the Class of 1920, Norrie Abbott, as well as his associate, Andy Johnson '20.

George W. Pollock reports a new home address at 4028 N. Rockland Court, Shorewood 11, Wis. ... **Edwin S. Lockwood**, retired from Public Service Electric and Gas Company, New Jersey, says mail will reach him at Rt. 2, Box 151A, Salem, Va. ... **George** and **Muriel Owens** can be reached at their winter address, P.O. Box 3025, Vero Beach, Fla. ... Add to the November news of **Frank E. Huggins, Jr.**, his new home address: Mother Lane, Hunting Valley, Chagrin Falls, Ohio. ... **Herb DeStaeb-**

ler and others who have inquired about **Antonio H. Rodriguez** can now address him at 1245 N.E. 98th Street, Miami Shores, Fla. ... **Col. Harold O. Bixby** has removed the headquarters of his electronic firm, the H. O. Bixby Associates, Inc., from Cambridge to Asuncion, Paraguay. ... Professor **Reginald H. Smithwick, M.D.** is a member of Medical Associates, 203 Commonwealth Avenue, Boston 16, Mass.

Promotion from Brigadier to Major General has come to **John R. Hardin** of Wittman, Md. ... Professor **Harold K. Moritz** heads the Hydraulics Laboratory of the University of Washington, Seattle 5, Wash. ... **Paul L. Hanson** has left Minneapolis to become associated with Elektron Industries, Inc., 760 Industrial Road, San Carlos, Calif. ... New addresses are available on request for **James LeGrand**, **Frederick F. Olson**, **Col. Leland H. Hewitt**, **Ivan C. Lawrence**, **Herman Broockmann**, **Rev. Williston Wirt** and **Zambry P. Giddens**. In the absence of communications from **Hso-Ying Liu** and **Emil J. Bachmann**, their names are being removed from the class roster in accordance with Alumni Association procedure. If you know their current addresses, please notify your Secretary.

General **Lewis B. Hershey**, Director of Selective Service, and **Dr. Detlev W. Bronk**, President of the National Academy of Sciences, will be the principal speakers at the January 19 annual meeting of the Engineers Joint Council in New York, presided over by the Council's president, **Augustus B. Kinzel**, who will make the year end report. ... **Irv Jakobson** and your Secretary were among the guests at a most interesting Second Century Fund dinner in New York for our distinguished President, **Jay Stratton '23**, who gave an inspiring address, detailing the basis and the current urgent needs for additional funds for Technology. When you reply to Jake's recent letter on our Fortieth Reunion Gift (which applies to the Second Century Fund as well) you will have the satisfaction of knowing that you have helped, through the Institute, to support projects with tremendous impact on Technology, the entire country and the free world.

Maxine and your Secretary are happy to welcome among our near neighbors in New Jersey, the families of **Gonzalo C. Docal '44** and **Manuel A. Cadenas '45**, respectively the incoming president of the M.I.T. Club of Cuba at the time of our class reunion there in 1958, and his successor to the same office. On the occasion of a visit by **Chick** and **Maida Dubé** to our Glen Ridge home last November, we were joined by **Sumner** and **Betty Hayward** and the Docal and Cadenas couples in a showing of the slides and pictures from both our Havana and Mexico City reunions, augmented by those made by **Bob Miller**, **Dug Jackson** and **Munnie Hawes**. The Dubés were celebrating their 37th wedding anniversary and had recently entertained **Phil Nelles** and **Larc Randall** at their home in Reading, Mass. En route, they had stopped in Manchester, Conn., to see **Ray** and **Helen St. Laurent**. Sumner reported a visit to Munnie and Alex Hawes at their home in Sea Girt, N. J.

The tempo of phone calls and letters betwixt your class officers and committee chairmen has increased in proportion to the considerable reunion effort. Ray St. Laurent and Mel Jenney concurred in making provisions for the class at the April 8 dinner in Cambridge for M.I.T.'s observance of the actual April 10 centennial date. Ray says he ran into Victor Van Neste '22, who advised that his brother, **Raphael Van Neste '21** is with the U. S. Public Housing Administration, Washington, D. C.

Among those who have already indicated their probable attendance at our fortieth reunion are: **Dr. Frederick W. Adams**, Director of Research, Continental Can Company, Chicago, Ill. Fred's two elder sons both attended Technology and both are married. There are two granddaughters. The youngest son, Stephen, is just starting grade school. . . . **George A. Chutter** of Portland, Conn., heads his own manufacturers representation organization, with headquarters in Jersey City, N. J. He is also a director of the Harper Electric Furnace Corporation. The Chutters have three sons and two grandchildren. . . . **Francis B. Kittredge** of North Andover, Mass., is district sales manager of Jones and Laughlin Steel Corporation, Boston. His business activities include directorships in the Arlington Trust Company of Lawrence, Mass., the Fabri-Kal Corporation of Kalamazoo, Mich., the Great Pond Insurance Company of North Andover, and he is a trustee of the Broadway Savings Bank, Lawrence. He supports many community and social organizations actively and his avocation is maintaining a dairy farm devoted to the breeding of Holstein-Friesian cattle. Son Robert is married and the Kittredges have three grandchildren.

Lewis W. Moss of Mt. Carmel, Ill., says he has retired from the New York Central Railroad in order to devote more time to his golf and photography. His son, a Purdue graduate, is married and has four daughters. . . . **Arthur G. Wakeman** of Neenah, Wis., is president of the Coosa River Newsprint Company and vice president and director of Kimberly-Clark Corporation. The Wakemans have one daughter. . . . **Donald G. Morse** is a partner in Jas. F. Morse and Company, Boston. He has two sons. . . . **Seymour Colton** is president and director of Macco Chemical Company, Wilmington, Del., and a director of Gates engineering and Woodrow-Dare companies. Sons Gary and Evan were graduated from Technology; daughter Gale from Swarthmore; Marion is attending Mt. Holyoke. There are eight grandchildren.

In the new scheme of things, 25- and 40-year classes become the focal points at M.I.T. celebrations in June. Please make every effort to join in our anniversary party this year. Send in that form right away and indicate your intention to be present. While you're about it, why not contact another member of the class and arrange a foursome?—**Carole A. Clarke**, Secretary, c/o International Electric Corporation, Route 17 and Garden State Parkway, Paramus, N. J.; **Edwin T. Stefian**, Assistant Secretary, Edwin T. Stefian, Architect, 11 Beacon Street, Boston 8, Mass.; **Melvin R. Jenney**, Fortieth Re-

union Chairman, Kenway, Jenney and Hildreth, 24 School Street, Boston 8, Mass.

'22

On page 38 of the Technology Review for November 1960, **William A. Tripp** is complimented on his book "The Geometry of Golf." His common sense analysis will not only decrease the number of divots, but increase the enjoyment of the game, decrease the score, increase physical coordination of the golf swing, and decrease the accompanying invectives. . . . Especially noteworthy in the November 1960 issue of "The National Geographic" is a 22-page article entitled "The Humming Birds" by **Crawford H. Greenewalt**, with photographs by the author. This experience started in 1953 as an interesting hobby and continued over 100,000 miles of travel through the Americas, resulting in the most beautiful and interesting color plates imaginable. A note with the article says: "With patience, skill, and high-speed photography, a noted engineer and executive produces an extraordinary study of the bird world's living gems." Don't miss it. . . . The writings of **Parke Appel** continue to be about our 40th reunion at the New Ocean House in 1962. The main purpose will be to slap each other on the back with the original phrase "you old son-of-a-gun," but, incidentally, we will be celebrating a tremendous success in the phenomenal gift to be presented to the Institute. Our current total is \$261,000, but the gifts through the Second Century Fund have not been included.

Congratulations to **Laurence B. Davis** who was married to Mrs. Emily Munro Coates of Pelham in August. They are at home at 29 Hathaway Rd., Bronxville. Larry is sales vice president of Mobil International Oil Co. . . . **Allan H. Kidder** has been named assistant to the Vice President of the Philadelphia Electric Co. . . . **Thomas H. Gill** of East Orange has been named manager of purchases for Congoleum-Nairn, Inc., Kearny, N. J. He has been with the company since 1953. He had previously been associated with Alexander Potter Associates as Consulting Engineer. . . . **Whitworth Ferguson** has been re-named chairman of the board of directors of the Buffalo Branch of the Federal Reserve Bank of New York.

The sympathy of our class is extended to the families of the deceased members including those of **Edward J. Ziock, Jr.**, of Merced, Calif., and **Godfrey B. Speir**, of North Chatham. Col. Speir was a graduate aeronautical engineer and had been associated with Curtiss-Wright. He served in both world wars and was a member of the reserve officers association.

Changes of addresses include: **George B. Bailey**, Orange, Conn.; **M. Thornton Dow**, Silver City, N. M.; **Charles H. Taylor**, Cranston, R. I.; **Dr. Ram Prasad**, Bombay, India; **John L. Liecny**, Phoenix, Ariz.; **Barrett G. Hindes**, Ross, Calif.;

Clyde P. Brockett, Toronto, Canada; **George T. Boli**, Sarasota, Fla.; **Fred C. Koch**, Wichita, Kansas; **Chauncey E. Eaton**, Downers Grove, Ill.; **Hector A. Lopez**, Pittsburgh; **Harold N. Loomer**, Kissimmee, Fla.; **Russell Hopkinson**, New York, N. Y.; **Lt. Gen. Wilhelm D. Styer**, Coronado, Calif.; **Harry E. Rockefeller**, New York City; **Howard J. Roberts**, Johnstown, Pa.; **Thomas E. Shepherd**, Portland, Maine; **John F. Austin Jr.**, Dallas, Texas; **Percy C. Keith, Jr.**, New York City; **William K. Taft**, Akron, Ohio; **John F. Otis**, Washington, D. C.; **Col. Charles Thomas-Stahle**, State College, Pa.; **Brig. Gen. Robert A. Willard**, Coral Gables, Fla.; **Lawson T. Blood**, Arlington, Va.; and **John O. Bower**, New York, N. Y. —**Whitworth Ferguson**, Secretary, 333 Ellicott Street, Buffalo, N. Y.; **C. George Dandrow**, Assistant Secretary, Johns-Manville Corp., 22 East 40th St., New York 16, N. Y.

'23

Rodney M. Goetchius has been selected to head a team of 200 engineers and technicians to forge a global lifeline on earth for the first U. S. astronaut in space. Rodney is project manager for Western Electric, the prime contractor in the establishment of an earth-circling communications and tracking network for the Mercury Man-In-Space Program. In September he made an 11-day, 20,000-mile inspection trip and has predicted that the network will be completed early in 1961 well ahead of the present schedule to put a man in space.

New York Central's President, **Alfred E. Perlman**, has stated that he is confident that his railroad will merge with the Baltimore & Ohio Railroad. "I feel confident the merger will ultimately come to pass and the door is still open for a three-way merger (with the Chesapeake & Ohio)," he said. The C&O is also seeking to merge with the B&O but its proposal does not include the New York Central. "Merger of the Central and the B&O is very necessary for maximum benefits to the public," Perlman said. "The railroads may survive without it, but it will make possible operating economies and lower freight rates which would benefit everybody." He said he envisions two great rail systems in the east, headed by the NYC and the Pennsylvania railroads.

Dean **John Burchard** had the distinction of being one of Nixon's advisors with the "Scholars For Nixon-Lodge" group. . . . Your secretary-treasurer was the principal speaker at the Kick-Off Banquet of the Leominster Community Chest held at the Monoosnock Country Club in September. The subject of his talk was "Business Men and the Community Chest." . . . Your secretary-treasurer also addressed the student chapter of the AIChE at Northeastern University on November 9. His subject was "Du Pont Safety Philosophy." It was a pleasure and a surprise to find our classmate **Sam Keevil** on hand to greet me. Sam has

been a professor of Chemical Engineering at Northeastern since early in 1960.

For those of you who live in the New York area it would be worth your while to become associated with the live-wire M.I.T. Club of New York. They have private facilities for meeting and dining at the Biltmore Hotel. The following from their president is pertinent: "You might be interested to know that our membership currently includes a large number of alumni who live in cities other than New York but who nevertheless find the Club's facilities well worth the nominal \$12.50 annual dues. Also, the Institute has taken an active interest in the affairs of our Club, and members of the administration and faculty have frequently participated in various Club events. We also publish and distribute an annual Directory of all Club members which can be helpful to alumni in getting in touch with classmates and other friends. Those who would like to join, need only send a check for \$12.50 to the M.I.T. Club of New York, The Biltmore Hotel, New York 17, N. Y., together with address and job data for the Directory."

Every member of the Class of 1923 should get wholeheartedly behind the Second Century Fund Drive. Give to your fullest extent and assist in your community. . . . Put down the dates of April 8 and 9 for a get-together at M.I.T. The occasion: ceremonies in connection with M.I.T. Centennial Week. Let's have a good class representation.

We wish to advise of the following address changes: **William E. R. Covell**, Route #1, Box 327, Carmel, Cal.; **Sixto E. Duran-Ballen**, Apartado 196, Guyaquil, Ecuador; **David M. Houston**, 415 El Centro, Hillsborough, Cal.; **Seth G. Lewis**, 520 Broad St., Newark, N. J.; **Engelbert B. MacDonald**, 30 North Grove St., Freeport, L. I., N. Y.; **William E. Otis**, 5840 Aylesboro Ave., Pittsburgh 17, Pa.; **William F. Perkins**, 213 Garden St., Needham, Mass.; **Roger E. Phelps**, 836 Hilton Ave., Oakford, Pa.; **Ernest W. Thiele**, Dept. of Chemical Engineering, Notre Dame, Ind.; **Charles H. Toll, Jr.**, 1608 Amberwood Dr., South Pasadena, Cal.; **George F. Tzougros**, N. Y. C. Transit Authority, 370 Jay St., Brooklyn 1, N. Y.; **Douglas R. Waterman**, 2360 Colorado Blvd., Denver 7, Colo.; **Sherman White, Jr.**, 74 Franklin St., Tiffin, Ohio.—**Herbert L. Hayden**, Secretary, E. I. du Pont de Nemours & Co., Leominster, Mass.; **Albert S. Redway**, Assistant Secretary, 47 Deepwood Drive, Hamden 17, Conn.

'24

As these notes are written the big news is still the recent election. No doubt many of you were engaged in local contests of one sort or another, but our biggest operator was **Luis Ferré**, running for governor of Puerto Rico against tough opposition, the incumbent, Luis Munoz Marin. In spite of the intervention of the local bishops, Marin won hands down, with 456,217 votes to Luis' 250,638. Luis

and his Republican Statehood Party couldn't overcome the remarkable progress Munoz Marin has made in raising the island's standard of living. Luis carried his campaign into New York City with its large Puerto Rican population. He told them that even if they couldn't vote for him from New York, they could write to the folks back home. And he was all in favor of that anti-Munoz Marin pastoral letter, saying that it was provoked by the "totalitarian and anti-church practices" of the party in power. This is the second time that Luis has made a bid for the governor's chair. Chances are it will not be his last.

We've just discovered that two members of the freshman class are sons of classmates. Peter Michael Fitz, the son of **Howard I. Fitz** is one. Howard has been head of the Physics Department at Chauncy Hall School for many years. Mrs. Fitz by the way is an alumna, Class of '34. The other is William Israel Rabkin, son of **Morris A. Rabkin**, supervisory patent attorney for RCA Labs in Princeton, N. J. . . . In October **Charles Allen Thomas**, Monsanto's board chairman, was awarded an honorary doctor of laws degree by Lehigh. His citation read, in part, ". . . scientist, industrialist, eminent leader in your profession and in the service of your country: your contribution to man's knowledge, your leadership in promoting national interests have won the acclaim of your fellow citizens."

Paul Cardinal's rocket and outer space interests which were so highly developed at our 35th reunion have evidently persisted. In October he gave a talk in St. Louis called "Report from Echo," in which he purported to tell how our civilization may look to a person in outer space. These far-seeing citizens from outside the Van Allen belts saw earth's "concepts of morality and justice in retrograde," says Paul. One line that particularly appeals to a Fund director is the one deploring an economy based too much on material values and the dollar, "gifts given to charity only slightly from the heart, mostly to save tax dollars." Paul sent word of **Tom Bundy** who has been in Cleveland for his firm, E. F. Hauserman, for some years. He is now a consultant to the company and has come back to New York. Tom spoke of an article in the Cleveland papers with a picture of **Bill Robinson**'s wife Patty receiving a plaque from the Salvation Army in recognition of the work done for it by Bill during his lifetime.

Here's one that came in during the summer that we skipped. It's from **George Neitlich**'s son Herb, '49, who is publicity chairman for the M.I.T. Club of Framingham, Mass. Herb's right on his toes. "I am pleased to advise that **Webster Brockelman** of your class has been appointed Membership Chairman of the M.I.T. Club of Framingham, Mass. I hope you will find room in your next column, in the Class Notes, to mention this honor." As far as we know Web is still chairman of selectmen in Framingham, although maybe the November upsets threw him out of the job. Well, he's still membership chairman, anyhow.

While we're on the subject of clubs, the M.I.T. Club of New York, Inc., is

also on its toes. They're looking for more members, including non-resident at \$12.50 a year. There's a brochure available describing the advantages. Write to the club at The Biltmore, 43rd & Madison Ave., if you're interested. Remember when the club had its quarters at 17 Gramercy Park in our day? It was opened in 1909 and by 1915 had 1,000 members. One of the features was the Stein Room where each member bought a panel with a hook from which depended his private pewter mug and pipe. Each one "owned a square foot in little old New York." Today's club is completely different, but it does have many things to offer, if not nostalgia.

G. Raymond Lehrer, Scientist. At least it seems logical that when a man gets to be a member of the corporation of a Museum of Science, it entitles him to be called a scientist. Ray has just received this honor from the Boston Museum for a five-year period. He had a rugged time this fall battling some of the new scientific marvels. A trip to the hospital for relatively minor surgery resulted in a long seige at the hospital and then at home. He was laid low by one of the wonder drugs that was supposed to help him. However, as of this writing he expects to recuperate in time to start a six months' trip around the world in January.

The **Griffin Crafts** family has been busy at unusual activities as usual. Betty was starred in several plays last summer at the Allenberry Playhouse in Pennsylvania. Now she's involved in a number of plays for adult education. Not quite sure what kind of education this is, but that's what Griff says. As for the head of the family, and we use the term loosely, Griff distinguished himself this fall as judge of the Specialty Show of the Bull Dog Club of Detroit. "Nice entry of 45 dogs including six champions."

J. Weston Pratt was a metallurgist in the East all his working life. Now he has retired and headed for golden California. He's living in El Cajon. . . . **Fredrick E. Martin** got his master's degree in chemistry with us. Have had no word of him through the years until his son wrote to say that he had died suddenly on October 1.

So much for now. Hope the new year brings you health and happiness.—**Henry B. Kane**, Room 1-272, M.I.T., Cambridge 39, Mass.

'25

Ed Kussmaul seems to be one of our principal suppliers of interesting news. A few weeks ago, the Boston Sunday Globe carried on one of its special pages an eight-column headline reading, "Westwood Man Nurses Banana Tree into Living Room Giant." About two years ago, Ed acquired a three-foot banana plant from a friend and this has now grown to a ten-foot banana tree occupying a corner of his living room. Considerable research went into Ed's horticultural pursuit, and the roots of the tree are in a 50-gallon steel oil drum which is located in the cellar. The green part of the tree occupies a sunny corner in the living

room. In order that the soil temperature can be maintained at about 80 degrees, the drum in the cellar is wrapped in a thermostatically controlled electric blanket topped off with a blanket of rock wool. The tree is watered weekly, and every two weeks is given liquid plant food. As the tree has grown, Ed has had to lower the drum a little farther into the cellar. To date the only thing which has not been accomplished has been the growth of some real bananas. From time to time, his four lively children startle their Dad and jokingly hang a few full-grown bananas on the tree!

News regarding other classmates has accumulated while much of our space was devoted to Reunion activities.

George F. Mahoney, who has been city engineer for the city of Torrington, Conn., has accepted the position of vice president in complete charge of the entire building operations of the firm of Oneglia and Gervasini, Inc. George has done a grand job for the City of Torrington over the number of years that he has served as City Engineer and has saved the taxpayers of that community many dollars. His new position offers a real challenge and, of course, better opportunities than the city job. He will continue as an adviser on the new high school now under construction which was one of the many projects which he had been instrumental in starting. . . . A card from **Kenneth C. Reynolds**, a member of our class, and one whom many of you may have had as an Instructor in Hydraulics, notes that he is now in his 14th year of teaching at the University of Southern California, and in his 42nd year of teaching in the several universities with which he has been connected. During the academic year of 1958-59, he was acting head of Mechanical Engineering at Muslim University in Aligant, India. . . . **Mac Levine**, President of the Webster Spring Company and the Webline Manufacturing Company, both located in Webster, Mass., is president of the Furniture and Bedding Spring Institute, a newly-formed association of companies engaged in the production of springs for use in the bedding and upholstery industry. This institute numbers some 34 firms throughout the country. . . . A letter from the M.I.T. Club of New York is a reminder that they have quarters at the Biltmore Hotel and suggests that when you are in town it might be worth your while to call at the Club Headquarters.

One death has been reported in the past month, that of **Joseph J. Redington** who died on September 8, 1960 in Santa Ana, Calif.—**F. L. Foster**, Secretary, Room 5-105, M.I.T.

'26

This is unusual, or rather a mistake. I'm writing class notes a week early but as usual it is Sunday A.M. at Pigeon Cove. We are waiting for a visit later in the morning from **Earle Lissner** and his wife. Earle phoned at 8 A.M. from the Parker House in Boston. I had a letter

from Earle all ready to incorporate into the notes, so as background for his visit let's read his letter. "Dear George: We are off to Philippi and Epirus in the Pindus Mountains. Do we have any classmates off in the back hills of Greece? Or do you have the address of the M.I.T. club in Athens? The ticket reads September 1, and if the jet gets off the ground, and back on again we will be in Athens at the Hotel Cecil (correction—Kafissia in the suburbs). The Greek idea of air-conditioning is to suck in all the tobacco smoke from the lobby, all the cooking odors from the kitchen, chill, and send it up to the guests. It is better to go out in the country and worry about taxi fares than to put up with progress. I will drop you a note when we get there. Before air travel, going to Turkey and Greece was a spectacular adventure, now one has to go to Katanga, Inner Mongolia, or Mars to be considered a traveler. I hope to see you at the reunion. Earle Lissner." By coincidence a summer neighbor of ours arrived in Pigeon Cove for the weekend. He is Dr. William Dinsmoor, retired Columbia professor and one of the world's leading archeologists. Since Dr. Dinsmoor has spent at least half of his life in Greece and is leaving shortly for Athens we are inviting him over to meet the Lissners.

While waiting let's go over the clippings and see what our classmates have been up to. In the July issue we reported the untimely death of classmate **John Drum**. During the summer I received a letter from Abbott Johnson '22, Board Chairman of Johnny's Company, advising of the appointment of a new president. I will quote from a clipping that Mr. Johnson sent. "A Rye, N. Y., man who came west to Muncie in 1956 on a six months assignment was elected president of Glasco Corp. **Bird Kelly** was chosen to head operations of the vending machine manufacturing firm at the annual meeting of the board of directors Friday. Abbott L. Johnson was named chairman of the board. A native of Ashland, Ky., Kelly attended Brown University two years and then graduated from Massachusetts Institute of Technology in the same 1926 class with the late John Drum, Glasco president who died April 23. Kelly was president of Airdraulics Corp., New Canaan, Conn., and Eastern sales representative of Glasco for nine years before he came to Muncie July 1, 1956, to head the sales department. The assignment here was initially planned to last about six months. Kelly kept his home in Rye and first lived in a garage apartment at the Harry Kitselman home. However, as the six months came and went, Kelly, joined by his wife, Glenora, moved into an apartment at the G. Fred Rieman residence on Burlington Drive. Named a vice president of marketing in 1958 and senior vice president in 1959, Kelly last year finally sold his home in Rye which he had left 'temporarily' in 1956. Glasco, formerly Glascock Brothers Corp., is a leading maker of vending machines and also manufactures commercial refrigeration units, food display equipment and fiberglass components."

Several of our classmates have assumed active roles in the M.I.T. Second Century Fund. **Robert C. Dean** has been appointed area chairman for Boston; **Louis J. Darmstadt** will be area chairman for New London, Conn.; **Eben B. Haskell**, for New Haven; **Thornton W. Owen**, for Washington, D. C.; and **William C. MacInnes**, co-chairman for St. Petersburg, Fla.

Since **Bob Dean** is mentioned above this is a good opportunity to bring you up to date about him via a news release that came in some time ago. Bob doesn't get enough fund raising work at his alma mater so he gives a hand to his son's college too, Brown University. The clipping originated from the Brown Fund office because Bob had been made chairman of the Parents Committee for the Brown University Fund. Let's see what the release has to say about Bob. "Robert C. Dean, a member of the Boston architectural firm of Perry, Shaw, Hepburn and Dean, joined his present firm, then Perry, Shaw and Hepburn, as a designer in 1930 and has been a partner since 1940. After enlisting in the Army as a private during World War II, Mr. Dean rose through the ranks to colonel, and in 1948 became a brigadier general in the U.S. Army Reserve Corps. His military awards include the Bronze Star Medal, U.S. Army Commendation Medal, Croix de Guerre (France), Croix de Guerre with Palm (Belgium), and Officer Order of Orange Nassau (Netherlands). Mr. Dean is a past president of the Boston Society of Architects and is active in other clubs and associations. He is the father of two daughters and two sons, one of whom, Andrew J. Dean, is a member of the Brown Class of 1962. The Dean family lives at 29 Hundreds Road, Wellesley Hills, Mass."

Well, I'm not finishing this final paragraph at Pigeon Cove but I do want to report that Earle and his wife made it for a short visit and a glass of sherry. They now know what Pigeon Cove looks like, they met our St. Bernard, Heidi, and inspected the class of '26 silver tray. From the postcards I have been receiving from Earle I had thought he had retired and that he was devoting his time to traveling and lecturing. Now I find that all this is accomplished in a month's vacation period each year. Earle still spends 11 months a year with The Public Service Co. of N. J. It looks as though he will be well prepared with a retirement activity nine years hence. I think I've used up too much of my space quota already, so let's hear from you soon, and cheerio until Washington's Birthday!—**George Warren Smith**, Secretary, c/o E. I. duPont de Nemours & Co., 140 Federal St., Boston, Mass.

'27

J. Robert Bonnar was recently appointed director of Industry and Government Relations on the Group Executive staff of the newly created General Dye-stuff, Antara Chemicals, and Collway

Pigments Divisions of General Aniline & Film Corporation. Prior to the creation of the new group of divisions, Bob was director of marketing for the former Dye-stuff & Chemical Division of the corporation.

In connection with the death of **Alf K. Berle** in Norway, mentioned in the November Class Notes, the following resolution was presented to the Alumni Association in October. This, I think, is particularly well done, and will be of interest to all who knew Alf personally. "Those of us who knew Alf K. Berle, as a friend, business associate, or 1927 classmate, were shocked to learn of his sudden death on July 22, 1960, in Bergen, Norway, following a week's illness. This occurred at the start of a long-planned tour of the Scandinavian countries and Western Europe with his wife and son. We have lost a good friend, a devoted classmate, and a valued business associate. A member of the Alumni Council since 1938, he was regularly in attendance at the monthly meetings and his presence here will be greatly missed. Always energetic, he tackled every new assignment with contagious exuberance. As Class Agent for 1927, he was largely responsible for planning the annual campaigns and worked enthusiastically with others on the committee for successful attainment of fund goals. Our significant 25th year Class Gift to the Institute was, in large measure, made possible through his untiring efforts. His valuable contributions to the Institute and its Alumni Association have been many and varied. He was a member of the Executive Committee of the Alumni Association from 1943 to 1945 when he was elected to serve a two-year term as Vice President of the Association from 1945 to 1947. He has been a member of the Committee on Establishment of Alumni Fund, Committee on Closer Student Relations, Committee on Increased Activities of Alumni Council, and the Class Reunions Committee. In addition he served two separate terms as a member of the Alumni Fund Board and at the time of his death was serving the Institute as an Educational Counselor. During his early association with the Patent Department of the United Shoe Machinery Company, Alf, in conjunction with L. Sprague DeCamp as co-author, wrote and published in 1937 a book entitled 'Inventions, Patents, and Their Management,' now in its fifth printing, and regarded as a top reference book in its field. This was the forerunner of his subsequent activities as instructor in a Patents and Trademarks course at the Institute and as consultant for a number of businesses on patent matters. A man of varied business interests, he had been at one time or another actively connected with several business enterprises. At the time of his death, he was the Eastern Sales Representative of Designers for Industry, a Cleveland company specializing in industrial research and machine development. Here, his broad technical background and ability to grasp the essentials of new technical developments well qualified him for this work. Born in Washington, D. C. on January 4, 1905. Entered M.I.T. in 1924. On March 28, 1942, he was married to

Elizabeth W. Smith of Dedham, Mass., where he and his family have made their home since that time. He is survived by his sister, Mrs. Gudrun Pierson of Wilton, Conn., his wife and their son, Roger. Always a devoted family man with a strong interest in community affairs, he served the First Church of Dedham (Unitarian) as Chairman of the Parish Committee and President of the Men's Club. In town affairs he was interested in and a strong supporter of plans for adoption of the Town Manager system of town government. He was also an active member of the local Republican Committee. A summer resident at Cliff Island, Casco Bay, Maine for some years, he was a Down East enthusiast. Being of Viking ancestry it is understandable that his yearly cruises along the Maine coast with his friends became a regular feature of his summer vacations. As friends, we shall feel the loss of his cheerful approach to life. As classmates, we are greatly indebted to him for all that he has done for the Institute and for the Class of 1927. As business associates, we shall remember him for his help and counsel. We note this loss, with deep regret, by this record which is being entered on the books of the Alumni Association, with copies sent to members of his family."

The M.I.T. Club of New York is planning to expand services and facilities, as well as membership, and it is possible that many of you will be interested in hearing about this. The membership currently includes a large number of alumni who live in cities other than New York but who, nevertheless, find the club's facilities well worth the nominal \$12.50 annual dues. Also, the Institute has taken an active interest in the affairs of the club, and members of the administration and faculty frequently participate in various club events. Also, an annual directory of all club members is published and distributed, which can be helpful to alumni in getting in touch with classmates and other friends. For those who would like to join, they need only send their check for \$12.50 to the M.I.T. Club of New York, the Biltmore Hotel, New York 17, N. Y., together with address and job data for the directory.

It is with deep regret that we record the death of **Philip H. W. Creden** on October 6, apparently from a heart attack suffered while waiting for a commuter train to Chicago at Golf, Ill. I was distressed to hear of the sudden passing of my ex-roommate. At the time of his death, Phil was director of advertising and public relations for the Edward Hines Lumber Company, Chicago, and was a nationally known lumber executive and former Chicago newspaperman. Survivors, besides his wife, Catherine, include his son, Philip, a freshman at Northwestern University; his daughter, Mrs. David Ellis of Wauconda, Ill.; his mother, Gwendolyn, of Golf, Ill.; two brothers, Samuel G., of Niles, Mich., and Thomas, of Milwaukee; and three grandchildren.

Upon hearing from the Institute recently of a change of address from Mrs. **Katharine Maynard** from Winter Park, Fla., to Westboro, Mass., we wrote a note

to her thinking that this change might involve a move on her part which would be of interest to other members of the Class of '27. A prompt reply revealed that she has been going to Florida only for the winter in the last 10 years and that Westboro, Mass., is her permanent home. Mrs. Maynard, formerly of Radcliffe, will be remembered as the Vail Librarian at M.I.T. It was nice hearing from her.

This interesting letter was received from Professor **Royal M. Frye** who is now Dean of the College of Advanced Science at Canaan, N. H.: "Thanks for your recent letter. My thumbnail sketch is something as follows: I received my Ph.D. in 1934. By teaching in more than one institution at a time, I have managed to roll up a rather formidable record of teaching years—16 years at M.I.T., 1 year at Worcester Polytech, 28 years at Northeastern, 19 years at Boston University, 10 years at Simmons College, and now 1 year as Dean of the College of Advanced Science. Total, 75 years, which is considerably above my present age! This new college is an interesting venture. We operate on the quarter basis. We started this year with two students. In the summer quarter we increased our enrollment (by a factor of 4) to 8 students. In the present fall quarter we have again increased (by a factor of 4) to 32 students. A simple calculation will reveal the fact that at this rate our enrollment in the fourth quarter of the fourth year would be 2×10^6 students! Heaven forbid! Our undergraduate department is organized as an engineering college and the graduate department leads to master's and doctor's degrees in physics and mathematics, the idea being that the engineer of the future will need all the training in mathematics and advanced physical theory that he can get. We have at present five graduate students, one of whom is a candidate for the doctorate. Please remember me to any of the fellows that happen to ask about me."

In mentioning last month that **Glen Jackson** is now a Class Agent for 1927, I should have emphasized that **Dick Hawkins** will continue also in his work as Class Agent, which has been going on over the past years.

Of interest to many should be the following new addresses of classmates recently received from the Institute: **F. Edward Anderson**, 98 High Rock Lane, Westwood, Mass.; **Armand E. Bourbeau**, 620 St. Louis Rd., Quebec, P. Q., Canada; **Arthur J. Buckley**, 2024 Greenfield Rd., Hagerstown, Md.; **Dr. W. Fitch Cheney**, Box 395, Storrs, Conn.; **Harold J. Creden** from Providence, R. I., to 100 Shirley Blvd., Cranston, R. I.; **Horace R. Dyson** from Camden, N. J., to 740 Redman Avenue, Haddonfield, N. J.; **Prof. Harold E. Edgerton**, Electrical Engineering Dept., M.I.T., Cambridge, Mass.; **John P. Engel**, P. O. Box 118, Miller Place, Long Island, N. Y.; **James E. Forbes**, 211 Newton St., Weston, Mass.; **Henry C. Fowler, Jr.**, 3310 Hebron Ave., Glastonbury, Conn.; **Prof. Royal M. Frye** from Boston, Mass., to Physics Dept., College of Advanced Science, Canaan, N. H.; **Mather Garland**, Route 1, Box 592, Excelsior, Minn.; **Paul**

B. Gebhardt from Lutherville, Md., to 1219 Dulancy Valley Rd., Towson, Md.; **Jean-Pierre J. Gouyet**, 149 Avenue J-Jaures, Montrouge, Seine, France; **Arthur B. Guise**, P.O. Box 621, Marinette, Wis.; **Francis J. Guscio**, 1949 Westminister Way, Atlanta, Ga.; **Wm. C. Haberer**, 5803 Brittany Woods Circle, Louisville, Ky.; **Jennings B. Hamblen** from New Orleans, La., to c/o American Oil Co., 555 Fifth Avenue, New York City; **Thomas M. Holt**, 942 Woodmont, Nashville, Tenn.; **Edward E. Mott** from Murray Hill, N. J., to 8 College Ave., Upper Montclair, N. J.; **Henry C. Myers** from Palm City, Calif., to 2308 National Ave., Imperial Beach, Calif.; **Benedicto B. Padilla**, 85-A Bonifacio, San Juan, Rizal, Philippines; **Emory F. Patterson** from Watertown, Mass., to c/o Peoria Steel Building Co., Peoria, Ill.; **Arthur F. Tallman**, R.D., New Hempstead Rd., Spring Valley, N. Y.; **Aram J. Vart**, 15153 McCann Road, Southgate City, Mich.; **Dr. Burnham S. Walker**, from Boston to French Road, Ashby, Mass.; **Leland D. Webb**, 241 No. Bentley Avenue, Los Angeles, Calif.; and **Clarence L. A. Wynd**, Eastman Kodak Co., Kodak Park Works, Rochester, N. Y.

We have notice of some more moves our classmates have made: **Rear Adm. Leslie A. Kniskern** from Brooklyn, N. Y., to c/o Gibbs & Cox, Inc., 1 Broadway, New York; **Richard J. Koch** from Mamaroneck, N. Y., to 175 E. Garden Rd., Larchmont, N. Y.; **Paul L. LaFrance** from Holyoke, Mass., to 121 Sherman Rd., Chestnut Hill, Mass.; **Roger A. Lord** from Methuen, Mass., to 3884 Bayside Walk, San Diego, Cal.; **Dr. David G. C. Luck** from Camden, N. J., to c/o R.C.A., Princeton, N. J.; **Frank Massa** from Hingham, Mass., to 373 Atlantic Ave., Cohasset, Mass.; **Mrs. Katharine Maynard** from Winter Park, Fla., to Maynard St., Westboro, Mass.; **E. Mann Nash** to St. Anne's Rd., Charlottesville, Va.; **John M. Pinkerton** from Caracas to c/o Creole Petroleum Corporation, Apartado 234, Quiriquire, Venezuela; **Miss Sara A. Scudder** from Centerport, N. Y., to 130 E. 57th St., New York City; **Edward R. Seim** from Baltimore, Md., to 111 Yorkleigh Rd., Bowson 4, Md.; **Robert M. Tucker** from Kensington, Conn., to 70 Grove Hill, New Britain, Conn.; and **Comdr. Richard C. Turner, Jr.**, to c/o Naval Weapons Lab., Dahlgren, Va.

There is still hope that our 1962 Reunion can be held at Oyster Harbors, Osterville, Mass. The committee is hard at work.—**J. S. Harris**, Secretary, Shell Oil Company, 50 West 50th Street, New York 20, N. Y.

'28

Ralph Joje received a card recently from **Eugene Boehne**. Gene was a professor of Electrical Engineering at M.I.T. from 1947 to 1960. He resigned from the staff recently to accept a position as Consultant for Research and Development of the ITE Circuit Breaker Co.

Dick Hoak, who is probably the class' busiest participant in professional society

activities, was the subject of a Technical Association of the Pulp and Paper Industry (TAPPI) news release dated October 20, 1960: "Dr. Richard D. Hoak, Senior Fellow, Mellon Institute, Pittsburgh, Pa., will present a technical paper during the forthcoming 15th Engineering Conference of the Technical Association of the Pulp and Paper Industry (TAPPI), October 23 through 27, 1960, at the Hotel Robert Meyer, Jacksonville, Fla. The technical paper is titled: 'Industrial Water Conservation & Reuse' and will be given by Dr. Hoak during the conference technical session on Sanitary Engineering. The conference program will consist of 18 technical sessions and several panels on all major aspects of engineering applications and progress in the pulp and paper industry. Dr. Hoak holds S.B. and S.M. degrees from the Massachusetts Institute of Technology, Cambridge, and a Ph.D. degree from the University of Pittsburgh. He is a member of the American Institute of Chemical Engineers, the American Chemical Society, the Water Pollution Control Federation, the American Water Works Association, the American Institute of Chemists, the American Association for the Advancement of Science, and the N. Y. Academy of Science."

Two '28 sons are members of the present Freshman Class: **Clifford Babson Terry**, 3rd, the son of **Clifford B. Terry, Jr.**, Course VI, and **Walter Dean's** son, **Claude de Seze Dean**. Claude's grandfather, **Walter C. Dean**, was in the Class of 1900.—**George I. Chatfield**, Secretary, 11 Winfield Avenue, Harrison, N. Y.; **Walter J. Smith**, Assistant Secretary, 15 Acorn Park, Cambridge, Mass.

'29

In keeping with the Centennial Week activities, which many of you will be attending, the class is planning an informal dinner on Saturday evening, April 8, we hope on campus, and following President Stratton's open cocktail party that afternoon. Definite plans as to place and time have not yet jelled, but it is to be informal with no speeches—just a chance for a quick "reunion." **Brig**, being unable to attend, has asked me to carry the ball for him. We will have more concrete and detailed information for you later on.

After spending seven years at the Institute, teaching Hydraulic Engineering, **Gordon Williams** has rejoined Tippetts-Abbett-McCarthy-Stratton, New York City Engineers and Architects. We will miss having Gordon in this area. . . . Peg and I spent a weekend with Dot and **Ed Powley** recently. Ed is doing a lot of traveling, covering the Eastern half of the country in his new assignment with City Service. Dot and Ed recently became proud grandparents—a boy each for their daughter Betsy and son Mark. . . . A release from the government stated that **Dr. Alexander Nikolsky** participated in the fall meeting of the Army Scientific Advisory Panel at Fort Knox, Kentucky. This panel was established by the Secretary of the Army in 1951 and

is composed of 60 of the country's leading scientists, engineers, industrialists, and educators. It assists the Secretary and Chief of Staff in their joint responsibility to give the country a ground fighting force as effective, economical, and progressive as scientific, technological and industrial resources permit. Dr. Nikolsky received his master's degree in Course XVI.

We note in this year's freshman class that **Michael Kimmel**, son of **Morris A. Kimmel**, Course X, and **Emery Morton Low**, 2nd, son of **Emery M. Low**, Course II, are enrolled.—**Fisher Hills**, Assistant Secretary, 62 Whittemore Ave., Cambridge 40, Mass.

'30

For the benefit of those who failed to scrutinize carefully the "Individuals Noteworthy" section of the November issue of The Review, the number of vice-presidents in the class of 1930 has been increased by two. **Charley Abbott** has been elected a vice-president of the New England Gas and Electric System in charge of their operations. Charley has been with N.E.G.E. since graduation from the Institute and is a director of the Corporation. He is also chairman of the Engineering and Operations Division of the Electric Council of New England. Charley's oldest son, **Charles Jr.**, graduated from M.I.T. in 1953 (Course XV) and is now with Procter and Gamble in Cincinnati. His second son **William** graduated from Harvard last June and plans to enter Harvard Law School after an interlude in the Navy. Daughter **Suzanne** is in the 10th grade at Lexington High School. Charley is fulfilling his civic responsibilities by acting as chairman of the Lexington Planning Board.

By an interesting coincidence the other new vice-president, **Ed Mears**, also lives in Lexington. Last June Ed was moved up to vice-president of the Dewey and Almy Division of W. R. Grace & Co., from his previous post as general manager of the container and chemical specialties division, and he still retains responsibility in this area. His division produces sealing compounds for tin cans, glass container closures and industrial parts; chemical admixtures for concrete; meteorological balloons; and soda lime for hospital anesthesia apparatus. Ed has three children, **Walter**, **Carolyn** and **William**.

The National Academy of Sciences—National Research Council has announced the appointment of **Prof. Robert C. Elderfield**, Professor of Chemistry at the University of Michigan, as Chairman of the Academy—Research Council's Division of Chemistry and Chemical Technology. The release goes on to state that Bob "has earned a wide reputation as an organic chemist whose research interests have been centered in chemotherapy and pharmacology" and that he is "also recognized as an authority on heterocyclic compounds and has edited five volumes concerning these compounds." In 1952 Bob received an honorary Doctor of Sci-

ence degree from Williams College where he did his undergraduate work. If my memory serves me correctly, Bob has a still further and perhaps even more important claim to distinction in that he was one of two M.I.T. men who met at the Institute and married distaff members of the class of '30. In Bob's case the lady is **Polly Betts Elderfield**. The other merger in this category is that of **Bud '32**, and **Helen Lustig Thornton**. If, as is altogether possible, my memory has played tricks on me, somebody please correct me, and I shall be happy to publish a supplementary report.

At the wedding of a son of mutual friends last summer, I ran into **Jim Morton** and his wife. Jim, like quite a few of the rest of us, has moved away from strictly engineering activities and is a senior partner of Loomis Sayles & Co., in Boston. In recent years Jim has been contributing to the support of a variety of women's colleges. His oldest daughter Caroline graduated from Stephens College several years ago. A second daughter is a junior at Skidmore and his No. 3 daughter is at Colorado College in Denver. Jim and his family live in Wellesley Hills where he spends a rather considerable amount of his spare time on his extra-curricular job as Public Works Commissioner.

Each year at the TAPPI meeting that is held in New York in February, there is a luncheon for M.I.T. alumni who are associated with the pulp and paper industry. Usually about 50 alumni attend. This year **Howie Gardner** is chairman of arrangements for the luncheon and will act as toastmaster. The date: February 22, 1961.

My partner **Howie Bollinger '43**, who is chairman of the Membership Committee of the M.I.T. Club of N. Y., has asked me to call your attention to the fact that the club is currently engaged in a drive to increase its membership. Quite a few out-of-town alumni who make business trips to New York have found the club's suite in the Biltmore Hotel a pleasant and convenient place to take their business associates to lunch. For those who are alone there is a Club Table at which you may meet alumni acquaintances. Since the annual dues are only \$12.50, no very heavy financial burden is involved. Either **Howie** or I will be glad to supply details.

As you know, it has been customary to include changes of address at the end of the Class Notes. However, as an incident of the preparation of the new Alumni Register, we are currently being engulfed by a tidal wave of address changes, and it would be impracticable to print them all. To illustrate the mobility of some of our classmates, two of these change notices came through recently which were dated September 26, 1960 and October 11, 1960 respectively and listed different addresses of the same classmate. To those of you who are interested in the whereabouts of your more peripatetic pals, I recommend the purchase of a copy of the new Register which is scheduled for publication in April.—**Gordon K. Lister**, Secretary, 530 Fifth Ave., New York 36, N. Y.; **Ralph W. Peters**, Assistant Secretary, 249 Holly-

wood Ave., Rochester, N. Y.; **Louise Hall**, Assistant Secretary, Box 6636, College Station, Durham, N. C.

'31

As the son of a Tech man (my father was in the class of '00), it's always a pleasure to learn of others who are members of the same group. John Carl Urmacher, the son of our classmate **Ralph Urmacher**, and Michael Jeremiah White, the son of **Meyer White**, both entered Tech as Freshmen this year and joined the clan. . . . A publicity release received from the Alumni Association tells that Dr. **Denis M. Robinson**, President of High Voltage Engineering Corporation, invited the scientists and engineers attending the scientific conference on development and application of radiation-producing particle accelerators to visit their new plant at Amersfoort, Holland. . . . Another release tells that **Tin Rucker**, President of Dixon-Powdermaker Furniture, Jacksonville, Florida, was named 1960-61 president of the National Association of Furniture Manufacturers. Tin joined Dixon-Powdermaker Furniture Co. in October 1949 as general manager, and became president two months later. . . . **Hal Gurney** and the others on your 30th Reunion Committee are planning a reunion that you just can't afford to miss. A big turnout is expected. More later.

Since the last Class Notes, word has been received of the deaths of three of our classmates. No details were given. **James McLean** passed away on September 17, 1957, **J. Edward Strout** died on August 2, 1960, and Rear Admiral **George C. Weaver** passed away on March 4, 1960.

Classmates for whom new addresses have been received include: **Edward S. Greene**, 5 Oxbow Drive, Avon, Conn.; **Oscar L. Lilja**, 171 Mission Lane, Bloomington, Minn.; **J. Whitney Perry**, Numerical Analysis Lab., College of Engineering, University of Arizona, Tucson, Ariz.; **Frank H. Simon**, 24 Lowndes Square, London SW1, England; and **Charles W. Sutherland**, Elizabeth Terrace, Upper Saddle River, N. J.—**Edwin S. Worden**, Secretary, 6 Murvon Court, Westport, Conn.; **Gordon A. Speedie**, Assistant Secretary, 90 Falmouth Road, Arlington 74, Mass.

'32

During October I had the privilege of addressing M.I.T. Clubs in Salt Lake City, Kansas City and St. Louis as part of the increased activity of these Clubs in our Centennial Year. In St. Louis I talked with **Ted Heim**, XV. He is back there again after having spent several years in Lancaster, Pa., starting up a new plant. He is now manager of the Warner-Hudnut Division operations in St. Louis. Ted prefers his native Missouri to any other part of the country, and he has covered quite a bit of it for Warner-Lam-

bert. . . . Another of the Listerine boys in our class whom I saw was **Dub Rash**, X. He very kindly threw a cocktail party for me at his lovely home. Fortunately, he did not limit his servings to the product which he manufactures in the best Course X tradition, Carling's Beer, as I like the products of the stills of Scotland much better. Dub certainly is enjoying his experience as vice president and general manager of the Carling operations in St. Louis. . . . I also talked with **Eric P. Newman**, XV. Eric is secretary of Edison Brothers Stores, Inc., one of the largest shoe store chains in the United States. Every year he finds time to take a trip overseas with his family. His last expedition was to several of the countries behind the Iron Curtain. It is pretty tough to be in a position to have known the rest of Europe so well that you have to start exploring the other side of the fence for novel scenery and experiences. We envy you in your travels, Eric, particularly the opportunity you had to go around the world. . . . So much for St. Louis!

Kurt J. Heinicke, VIII, has written requesting information on some of his classmates in Course VIII, complaining at the same time about the lack of news of these boys. This is not my fault because these boys just do not write. This holds for Course VIII and many other courses. If you want some information about your classmates give something to me about yourself to stimulate their interests. Kurt is president of the Heinicke Instruments Co., of Hollywood, Fla., the world's foremost manufacturers of laboratory glassware washers and cage washers. Sounds like a wonderful place from which to conduct an international business!

I do have news of one other Course VIII man, **Jack Millman**. He is back at Columbia University as Professor of Electrical Engineering. I quote from his letter, "For the academic year 1959-60 I was on sabbatical leave from Columbia University and with a Fulbright grant I spent the year at the University of Rome, Italy. Most of my time was devoted to consulting with the electronic circuits people (electronic engineers and physicists) at the 1000 MEV Electron Synchrotron at Frascati, just outside of Rome. I also gave a seminar course on Transistor Circuits there (in English, since most of the scientists understand our language quite well—I would estimate that about 95 per cent of all the books on physics, electrical engineering and mathematics in the library at Rome are in English). I was also invited to lecture on Semiconductor Devices and Circuits at the Polytechnic Institutes in Milan, Italy; Madrid, Spain; Athens, Greece; at the Technion in Haifa, Israel and at the University of Catania in Sicily. I came away with the impression that all of these countries are lagging way behind us in the electronics field. However, the calibre of instruction and the facilities in Israel were far superior to those in the other universities I visited. My boys, ages 11 and 15, went to the International Rome Overseas School and had an excellent course of

study there. Needless to say, they and their parents obtained quite a liberal education both in Rome and in our eight weeks of travel throughout Europe last summer. We thoroughly enjoyed our year abroad, but all of us are happy to be home again."

I might mention my own travels during the past summer. For a week I was over in Vienna again as a consultant to the International Atomic Energy Agency. My particular concern was the new laboratory which is being planned for Monaco under the chairmanship of Prince Rainier. This will be an adjunct to the very fine Oceanographic Institution which he already has there. He was a wonderful fellow to work with and very learned. I had a conference with him last May in Monaco and was pleading his case before the meeting of the Scientific Advisory Committee of the United Nations in New York in November. You may have read of the problem that France started with their intent to dump 6500 barrels of radioactive wastes in the Mediterranean close to Monaco. I have also been to Paris and Saclay discussing this matter of radioactive wastes disposal with the staff of the French Atomic Energy Commission. Later in the summer I was fortunate in taking a 10-day trip with General Minton, the Director of Civil Engineering for the Air Force. We covered the DEW line from Greenland to Alaska and looked at various installations for civil engineering facilities, including the new Ballistic Missile Early Warning System stations in Greenland and Alaska.—**Rolf Eliassen**, Secretary, Room 1-138, M.I.T.

'34

Taken as a typical sample, the news clippings and letters from classmates received during the past few weeks show how well the Class of '34 is represented in the significant activities of these times. Happily, there is a minimum of bad news to report at the time of this writing.

Charles Parker received a nice write-up in a recent issue of the American Standards Association magazine telling of his years of work with the American Iron and Steel Institute (since 1934) and his responsibility, as assistant vice president, for the AISI Division of Research and Technology. He recently moved from Long Island to Norwalk, Conn. This permits easy commutation to the Socony Mobil building in New York and improved access to his house in Windham, Conn., which, incidentally, is near the University of Connecticut where his son is teaching. . . . The New York Times announced on November 5 the appointment of **Hal Thayer**, one of our Class Secretary Team, as president of Mallinckrodt Chemical Works of St. Louis, Mo. . . . **George Merryweather** has been elected president of the American Machine Tool Distributors Association. He has been in California a little more than a year and is president of the Merryweather-Strasman Machinery Corporation

in San Mateo. His home address is 45 Old La Honda Road, Woodside, Calif. . . . **George Best** is president of the National Association of Corrosion Engineers which keeps him very busy. A recent note from him written at White Sulphur Springs revealed that he is now on the staff of the Manufacturing Chemists' Association in Washington and has chosen to return to Baltimore to live. His wife, Grace, splits her time between church activities and cooking for their 14-year-old son who is nearly six feet tall. Their home address is 4416 Wickford Road, Baltimore 10, Md.

Ed Sylvester, who is president of the American Ship Building Company, has moved to 2749 Landon Road, Shaker Heights, Ohio. His company operates four shipyards on the Great Lakes and, as an interesting sideline, owns over 1100 trailers and tractors for the highway transportation of new automobiles from Ford plants. He and his wife, Elizabeth, have four children: Edmund Q., III, 22; Michael, 20; Anne, 17; Elizabeth, 9. . . . Last year, **Lyman Allen** left 18 years of business activity in the synthetic fiber industry to become chief engineer with International Flavors and Fragrances, Inc. This company is the world's largest manufacturer of synthetic perfumes and flavors. He has built a new home on Red Coach Lane, Locust, N. J., and by the time this appears in print should be comfortably located in it. . . . Some of you who were school dormitory-residents will be glad to learn that **Maynard Sayles** is very happy in his new home in the South. He has joined Olin Mathieson Chemical Corp., and is located at their Packaging Division—Bags, in West Monroe, La., as chief industrial engineer. He is a radio ham operator with call letters W5CFD. The older of two sons graduated from college last June and is with the Elcor Company in Falls Church, Va. Maynard, his wife and younger son (17) live at 2119 Oliver Road, Monroe, La.

For **Charles Stuart** 1960 was a big year. In January his son was married. In April construction was completed on their new home at 7441 Country Club Drive, North, Oklahoma City 16, Okla. In August one of his two daughters was married. Although admitting to being "a bit dazed" he has been able to maintain his job as executive vice-president of The Fidelity National Bank and Trust Company in Oklahoma City. . . . A 1928 West Point graduate, **Robert G. Butler** became a member of our class through his graduate work for a master's degree at M.I.T. His subsequent service with the United States Army is studded with interesting assignments, promotions and honors. As of last June 30 he retired from the regular Army as a Major General and is now busily occupied as technical assistant to the Director, Research Division of Intelligence Technology Laboratories, a division of Itek Corporation. At the moment he lives during the week in Boston and goes to Cape Cod on weekends. He and Mrs. Butler hope to establish a permanent home on Starboard Lane, Osterville, Cape Cod, this winter. All of their children are away from home.

Their son received a law degree from the University of Michigan in 1957 and their two daughters have both finished college and married.

William E. Dobbins, who is now professor of sanitary engineering at New York University, is seeking a theoretical explanation of the way gas is transferred from the atmosphere to a large body of water. He is being aided in this work by a grant from the U.S. Public Health Service. The research is aimed toward determining the amount of treatment required by organic wastes before they can be dumped without causing excessive water pollution. Dr. and Mrs. Dobbins and their three children live at 50 Cedar Street, Closter, N. J.

A note from **Karl Gardner** refers to his move to California (reported in the March 1960 Class Notes) as a fulfillment of his "natural desire to live and work in the San Francisco area" and his wish "to broaden the base of my activities beyond the heat transfer field." The Gardners have two children, Kay (19) and Winston (14). . . . **Bob Becker** (Robert M.) recently wrote an informative letter regarding his business and family. He has seen the engineering firm of Linenthal and Becker, Inc., grow "to be one of the medium-sized offices in the metropolitan Boston area." Working often with architectural firms, they design a wide variety of commercial and industrial buildings, handling the structural work and mechanical trades in their own office. His four girls now range in age from 8 to 20. Despite these responsibilities his wife is still "going to college" part-time at B.U. With respect to his hobby of movie making, Bob says he has found "a perfect device for synchronizing film and tape" when adding sound to films through the use of magnetic tape. He would be glad to pass the information on to interested classmates. His business address is 16 Lincoln Street, Boston 11, Mass.

John Barrett, who has been lost to these columns since graduation, has been "found." He is in the Materials Division in the office of the Director Defense Research and Engineering and has his office in the Pentagon. Previous government service included "a two-year stretch in Germany for the State Department where I merrily drank German wine, acquired some knowledge of the tongue, and incidentally helped to control German metallurgical industry." In 1954, his wife died of leukemia leaving to him the care of his 15-year-old son. In 1957 John was married to Mary Peirce Bruns "a Baltimore girl" and they now have two more boys (2½ and 1) to keep them young. They are living at 7118 Exfair Road, Bethesda 14, Md. . . . A thoughtful letter from **Jean Raymond**, who is president of Raymond Manufacturing Co. Ltd., in Lachine, Quebec, tells of his company's recent move to larger and better quarters. He says, "I believe we have the largest installation in Canada for color anodizing. We have also new facilities for high-vacuum metallizing, and we also design, fabricate and install special types of fenestration."

An account (with picture) in the St. Petersburg Times tells about **Bill Mills'** appointment as co-chairman of the M.I.T. Second Century Fund program in the St. Petersburg area. Two other classmates have also been assigned SCF responsibilities. **Jacob J. Jaeger** who is president of Pratt & Whitney Co., Inc., has been appointed chairman for the Hartford, Conn., area and I have been appointed chairman for the southern West Virginia area.—**G. K. Crosby**, Secretary, Longwood Road, Huntington, W. Va.; **H. E. Thayer**, Secretary, 415 W. Jackson Road, Webster Groves 19, Mo.; **M. S. Stevens**, Secretary, Patent Section, Room 20B-131, M.I.T., Cambridge 39, Mass.; **J. P. Eder**, Secretary, 1 Lockwood Road, Riverside, Conn.

'35

Latest addition to our "Secretariat" is **Chester E. Bond**, District Secretary for the North Shore. Chet, with his wife Ellen and four children, lives at 423 Puritan Rd., in Swampscott, Mass. He is treasurer of Bond Bros., Inc., general contractors specializing in institutional and industrial work. He had previously been employed by General Motors and the Boston Consolidated Gas Co. Chet's children include 17-year-old Ellen K., a senior at dear old Swampscott High School (your Class Secretary was Chairman of the Thirtieth Reunion of the S.H.S. Class of 1930 last June), Christopher, 13, and Anthony, 11, attending the new Shaw Junior High School, and Rosemary, 9, in the third grade at the Stanley School. Chet is president of the Massachusetts Chapter of the Association of General Contractors and belongs to the Massachusetts Builders Congress and the Engineers Club. He's a member of the Tedesco Club, where he gets some chance to play golf, occasionally with a former S.H.S. classmate on that same reunion committee.

My public apologies to **Ernie Van Ham**, whose name became Van Horn in the November Notes. Which reminds me, with more apologies to Ernie, that WIOZ on 14 megacycles single sideband is active. This opens up fantastic opportunities to get any red hot news to me in a hurry. . . . To encourage volunteers to join up as District Secretaries, advance copies of these Class Notes are being mailed as written. Furthermore, starting with this month, anyone who is mentioned in the Class Notes will receive a copy six weeks before the Review brings it. How do you get mentioned in the Notes? Communicate with your nearest Secretary—there are now 14 of us.

Gerry Rich, Regional Secretary, sends the following West Coast Notes: I had a conversation with **A. Willard Jackson**, with whom I was associated two years ago on the Alumni Fund Drive. He is living at 8 Doud Drive, Los Altos, Calif. Willard has been associated with Western Knapp Engineering Company for six years where he is in Project Engineering. He hasn't been active in engineering full

time since M.I.T., however, having been in the produce business in Iowa for something like nine years previously. In 1937 he married Lola Goodell and his daughter is now married. Ten months ago she made him a grandpop. Willard says he likes to do a little fishing and otherwise attempts to "keep ahead of the weeds." . . . Another contact was made with **William O. Thompson** who lives at 1712 Kearny St., San Francisco 11, Calif. He married Kathryn White in 1938. They have no children. Bill tells me he was active during the war working for the government in shipping administration in connection with lend-lease shipments to Russia and the Persian Gulf. He indicated that he had had some interesting experiences with Russian officials. Nine years ago Bill formed his own company, operating in the field of petroleum engineering, specifically fleet conversion. Like many others he has changed to an entirely different field since graduation. . . . This correspondent is still having difficulty getting classmates to answer their mail (requests for information). I, therefore, should like to appeal through this column to those who lost the request or just procrastinated. Remember, your life may be very dull to you, but may be very interesting to some of your old classmates who think their lives have been even duller.

There are six members of the Freshman Class at M.I.T. whose fathers are classmates of ours. They are: Barbara Rose Cohen, daughter of **Paul Cohen**; Philip Nathan Dangel, son of **Phoenix N. Dangel**; James Marvin Flink, son of **Ellis M. Flink**; Mark Gerald Lappin, son of **Lester Lappin**; Christopher Binder Whorton, son of **Leonidas P. Whorton**; and Karl Andrew Achterkirchen, son of **Karl H. Achterkirchen**. Karl H. dropped me a card to tell me Andy has pledged Alpha Tau Omega and is also a recipient of an Alfred P. Sloan Scholarship. Karl H., in his 20th year at Lockheed, is primarily concerned with the F104 European License Program.

Clark Nichols, a course V1-A man, has been made manager, Systems Engineering Division, Engineering Dept., of Leeds & Northrup Co., Philadelphia. His former post was as a section head in the Application Engineering Division. Clark joined the manufacturer of electronic instruments and controls after graduation. A widely known control engineer, he has served as national chairman of the systems control subcommittee, Systems Engineering Committee, of American Institute of Electrical Engineers. He and Mrs. Nichols, who was Miss Eleanor Brooks of Philadelphia, have three sons: Daniel, Theodore and Andrew, and live in Oreland, a Philadelphia suburb. . . . Leo Beckwith sent along to me a letter from **Dave Cobb** containing a suggestion as follows: "Just so long as you didn't have to do any of the work, what do you think of the idea of canvassing those who attended the reunion for the purpose of getting them to send in prints of pictures they took, and then compiling an album for future reunions? While everyone knows where his pictures are and the event is fairly fresh in their minds, it

seems like a good time to hit them." So, all of you who took pictures at the Reunion last June, including but not limited to: **Ed Taubman**, **Oscar Hakala** and **Charlie Debes**, please contact David F. Cobb, Bullard Lane, Dedham, Mass., sending prints and suggestions.

A Class Steering Committee made up of interested members in the Greater Boston area was called together at Smith House, October 26 by President **Leo Beckwith**. Those attending included: Ham Dow, Dave Cobb, Walter Stockmayer, Robert Forster, Gerald Golden, Prescott Smith, Chester Bond and your Secretary. In addition to the welcome news that we have \$477.39 in the class treasury, a committee was established to arrange for local get-togethers including: Art Marquardt plus Dave and Prescott. We had an enjoyable evening over cocktails and dinner rehashing the reunion, talking about the next one and discussing ways and means to maintain and expand interest among our fellow classmates.

As the result of the acquisition of Applied Dynamics Corp. by the Atlee Corporation, the company I started nine years ago, we also acquired a brand new building on Route 128 to which we moved our executive offices. A nearby neighbor is BTU Engineering Corp., owned and operated by **Howard Beck** with whom I have been renewing acquaintance. Howard took me through his highly active and interesting plant that makes special conveyor type furnaces principally for the semi-conductor industry. He is going through the particularly trying time of a small operation in a period of very rapid growth where the President has to wear many hats. Howard says he is so mired in administrative and sales detail (in spite of yeoman service from his good wife in the office) that he has not been able to stop long enough to look for the twin he needs to help him run the show. **Forrest Goldsmith**, the Chief Engineer at BTU is holding his own so far. They have new building plans in mind, too. Howard told of meeting **Harold Oshry**, Vice President of Steel Industries at Crawfordsville, Ind., on a business trip after reunion. Hal had read about BTU in the Reunion Class Book en route home and contacted Howard to come to try to solve a furnace problem for him.

Stanley M. Alexander, who retired July 1 from active duty in the Navy, has joined the Mitre Corporation as a staff assistant. Stan now lives at Red Brook Terrace, Cataumet, Mass. . . . **John Taplin**, President of Bellofram Corporation, is getting quite a reputation as a public speaker. One of his recent engagements was at the Hunnewell School in Wellesley, Mass. . . . **Walter Godchaux, Jr.**, who lives at 1835 Octavia, New Orleans, was appointed to the Educational Council of M.I.T., a nationwide organization of alumni. . . . Lt. Col. **Richard L. Shaw** has been named commander of the 117th Army Area Service Unit with headquarters in Hartford. This unit is the largest non-divisional Army Reserve Unit in Connecticut. Dick is Safety Coordinator at the Hartford Machine Screw Co. . . . **William L. Abramowitz** has been elected chairman of the

Board and chief executive officer of Carlon Products Corp., world's largest producers of plastic pipe. Bill continues to make his home in Swampscott, Mass., traveling to Aurora, Ohio every other week.

You, too, can assist in making these notes interesting reading. Telephone, write or call on your nearest secretary—now, before you forget. **Edward C. Edgar**, Kerry Lane, Chappaqua, N. Y.; **Hal L. Bemis**, 510 Avonwood Rd., Haverford, Pa.; **Elmer D. Szantay**, 6130 N. Kilbourn Ave., Chicago 16, Ill.; or **Gerald C. Rich**, 673 Rosita Ave., Los Altos, Calif.; Regional Secretaries.—**Allan Q. Mowatt**, Secretary, 11 Castle Road, Lexington 73, Mass.

'36

Nothing like starting the notes with a few commercials. The 25th reunion tops the list. Preparations are underway to make it "the most." **Hal Miller** is back from his extended stay in Europe and anxious to get the 25th show on the road. Several meetings have been arranged to set up committees and the overall program. Why not volunteer for a job before you win one? A full review of progress to date will be summarized in the next installment of the notes. . . . The Alumni Fund and the 25-year gift rank second. . . . Next a plea for some interesting news for the notes. . . . The M.I.T. Club of New York has also asked to get in the act with a plug for members. The club's membership currently includes a large number of Alumni who live in cities other than New York but who nevertheless find the club's facilities well worth the nominal \$12.50 annual dues. The club publishes and distributes an annual directory of all members which is most helpful in getting in touch with classmates and other friends. Those who would like to join need only send their check for \$12.50 to the M.I.T. Club of New York, The Biltmore Hotel, New York 17, N. Y., together with address and job data for the past several years.

Another reminder that the years are passing—Peter Angevine, son of **Oliver L. Angevine**, is a member of the Freshman Class at Tech, as is Charles Mabie, son of **Henry C. Mabie**. . . . **Ben Dayton** has been elected president of the American Vacuum Society. Ben's every day job is technical director of Consolidated Vacuum Corporation, a subsidiary of Bell & Howell. He has held that post since 1954. Previously, he was director of research and supervisor of the development and quality control department. Ben went on from Tech and added an M.S. in applied physics from the University of Rochester. In addition to the American Vacuum Society, he is a member of the American Chemical Society, American Physical Society, and the Instrument Society of America. (That should make him some sort of an "All American.") He is also a past member of the executive committee and former chairman of the standards committee of the Committee on Vacuum Techniques, and has authored

numerous articles published in scientific journals.

Dave MacAdam is the new president-elect of the Optical Society of America. Dr. Mac is research physicist and department head at the Eastman Kodak Company's Research Laboratories at Kodak Park, Rochester, N. Y. He joined the Eastman Kodak organization as a research physicist in 1936. Dave has pioneered in research laboratory applications of automatic computing machines to scientific problems and has made many studies of color measurement, the accuracy of color reproduction in color photography and printing, the theory of color photography, visual sensitivities to small color differences, visual adaptation to color, and photograph characteristics. He has represented Kodak on American Standards Association committees and has spoken at international conferences in England and Germany. Dave is a member of the Editorial Advisory Board of the international journal "Vision Research" and is co-author of the "Handbook of Colorimetry" and the "Science of Color." He is a fellow of the Optical Society of America, and a member of Phi Beta Kappa, Sigma Xi, the Institute of Radio Engineers, and is a fellow of the Society of Motion Picture and Television Engineers. He is chairman of the Program Committee of the Rochester Section, Optical Society. During World War II, Dave designed and developed methods of use of the spectrograph for study of camouflage and camouflage detection methods. He also directed research on the influence of color contrast on visual acuity.

Another **MacAdam**, **Walt**, has been elected vice-president of the American Telephone and Telegraph Company. He is co-ordinator of defense activities for the Bell System. Walt has been assistant chief engineer of AT&T since October, 1959. He began his telephone career in 1937, as a student engineer in the Long Lines Department of the company. He has been division plant superintendent for Long Lines in Denver, engineering superintendent for Western Electric on the DEW (Distant Early Warning) Line project, area chief engineer for Long Lines at White Plains. In 1956 he was named transmission engineer for AT&T and last July, building and equipment engineer. Walt is a member of Tau Beta Pi, Sigma Xi, the American Institute of Electrical Engineers, and a senior member of the Institute of Radio Engineers. Walt lives at 14 Fountain Drive, Valhalla, N. Y.

Abbe Schwartz is associate professor of mathematics at City College of New York. After getting his Ph.D. at M.I.T. he spent two years studying at the Institute for Advanced Study at Princeton. Following this he taught at Pennsylvania State University for several years before coming to City College. He has written several research papers in differential geometry and numerous reviews. Recently he had published a book titled "Analytic Geometry and Calculus."

Howie Turner is the new vice-president and president-elect of the Industrial Research Institute. He is vice-presi-

dent-research and development, Jones & Loughlin Steel Corporation, a spot he has occupied since 1954. He had previously been director (1948-1954) and assistant director (1947-1948) of the Research and Development Division of Consolidation Coal Company of Pittsburgh. Earlier, he had been associated with E. I. duPont de Nemours & Company as a research chemist and supervisor from 1936 to 1947. Dr. Turner is a member of Sigma Chi and Phi Beta Kappa, and several technical societies. He is a director of the Turner Construction Company and a member of the Board of Managers of Swarthmore College.

Directors of the Hazeltine Corporation have announced the election of **Webster H. Wilson** as president. He had been executive vice-president for operations of Hazeltine Electronics Division and a director of Hazeltine Corporation since 1958. He joined the company in 1946 and became a chief project administrator and later vice-president of the Government and Commercial Department. Hazeltine, with headquarters in Little Neck, Long Island, has facilities in 11 Long Island communities; Indianapolis, Ind.; Chicago, Ill.; Dayton, Ohio; and Washington, D. C. The company is engaged in the design, development and production of complex electronic equipment and systems. Through its subsidiaries, Hazeltine also is active in developmental work in radio and television, photographic, office equipment and other industrial fields.

Now let's end with a commercial. **Justin Shapiro** writes: "Moved again, now with Microchemical Specialties Company, 1825 Eastshore Highway, Berkeley 10, Calif. This time hope to make Spectrolation (continuous flow macropreparative electrochromatography) an accepted industrial process."—**Jim Leary**, Secretary, Indian Harbor, Greenwich, Conn.

'37

Eugene Cooper has been appointed scientific director of the U. S. Naval Radiological Defense Laboratory in San Francisco. Gene has held a number of high level positions including professorships at the Universities of North Carolina and Oregon, and in research at the Franklin Institute, Philadelphia, Pa., and in government installations. Prior to joining N.R.D.L., he was associate head of the Underwater Ordnance Department, Naval Ordnance Test Station, Pasadena, Calif. He joined the Staff of N.R.D.L. in 1951 as head of the Special Operations Division and was selected for the associate directorship in 1955. Gene received his Ph.D. in physics from the University of California. He and his wife with their three children live in Daly City, Calif. . . . **George Wemple** has been named vice president of the Irving Trust Company of New York City. George joined the bank this year and has been associated with the Research and Planning Division. Prior to joining Irving he was divisional vice president of

Allied Chemical Corporation. . . **Charlie Kahn** is now president of the Wyant Conditioning Corp., New York City, which has just changed to corporate status.

Irv Tourtellot has been elected secretary-treasurer of the North Carolina section of the American Society of Civil Engineers. Irv is associated with Charles T. Main, Inc., at Charlotte, N. C., and has been active in affairs of the North Carolina section for many years. Report comes from Charlotte that Irving has been most active in Tech Alumni affairs in Charlotte, setting up nearly all of the informal meetings held there. . . **Herb Shuttleworth** has been appointed as the M.I.T. Second Century Fund's Area chairman for the Schenectady, N. Y., area; **William B. Bergen** is the area chairman for Baltimore, Md., and **J. R. Fitz-Hugh** is area chairman for New Orleans.—**Robert H. Thorson**, Secretary, 506 Riverside Ave., Medford, Mass.; **Prof. Curtis Powell**, Assistant Secretary, Room 5-323, M.I.T., Cambridge, Mass.; **Jerome Salny**, Assistant Secretary, Egbert Hill, Morris-town, N. J.

'38

We have word of the death of **John Rote**, who was killed early in October when his plane crashed in Hamlin, W. Va. John was technical director of the Standard Packaging Corp. of Brooklyn, N. Y.

Haskell Gordon has been elected president of the M.I.T. Club of Central Massachusetts. . . This year we have a classmate with a son enrolled in the freshman class. **James Kotanchik**, son of **Joseph Kotanchik**, will graduate in 1964. . . **Donald Robbins** has been appointed as executive vice president and treasurer of the Singer Manufacturing Company. He was formerly vice president in charge of the European department.

Our 25th reunion gift committee reports gratifying response to their efforts toward achieving a substantial gift to the Institute. Thus far, \$35,300 has been received in cash, and an additional \$30,300 has been pledged. Thirteen of the gifts range from \$1,000 to \$10,000 each.—**David E. Acker**, Secretary, Arthur D. Little, Inc., 1424 4th St., Santa Monica, Calif.

'40

Herb Hollomon was one of the panel members attending the annual fall meeting of the Army Scientific Advisory Panel at The Armor Center in Fort Knox, Ky. The Army Scientific Advisory Panel was established by the Secretary of the Army in 1951 and is composed of 60 of the country's leading scientists, engineers, industrialists and educators. The panel assists the Secretary of the Army and the Chief of Staff in giving the U.S. a ground fighting force as effective, economical and progressive as scientific, technological and industrial resources permit. . . **Larry Jones** has joined United Aircraft Corporation's Norden division as chief of

the digital group in the engineering department. Previously, Larry had been with Westinghouse as an advisory engineer in charge of the digital computer group. . . **Jim Baird** has been elevated to the position of sales manager for white pigments in Du Pont's Pigments Division. . . **Ed Brush** has joined the staff of the General Electric Laboratories in Schenectady, N. Y. Ed has been with General Electric as a corrosion engineer and has specialized in the corrosion of structural and nuclear core materials in high-temperature media.

There is no question that we get older year by year. As signs of the times, two members of our class have sons in the Class of 1964! **John Elwyn Hammond**, the son of **Ed Hammond**, and **Arthur Howarth MacNeal Ross**, the son of **Arthur Ross**, will graduate in 1964. As these notes are being dictated the day after election and as your Secretary was up until after 4:00 in the morning, these increasing years are felt.

Continuing the report from the Reunion, **Ted** and **Phyllis Edwards** have two daughters, **Edith**, 15, and **Judith**, 12. **Ted** is district manager of the Mining Equipment Division of Eimco Corporation. **Ted's** home base is Hingham, Mass., and he is travelling 90 per cent of the time (and, unlike Kennedy and Nixon, this is not merely during an election). . . **Dick** and **Josita Babish** live in Wilton, Conn., and have two youngsters, **James**, 14, and **Tina**, 7. In 1956 **Dick** gave up his daily commuting jaunt of over 100 miles when he left Cinerama to work for Perkin-Elmer Corporation, where he is now Projects Manager of the Reconnaissance Branch, E. O. Division. **Dick** was Director of Technical Services for Cinemiracle which resulted in the production of the picture "Windjammer." One of the present projects under **Dick's** direction is Stratoscope II, which is a balloon-borne telescope of 36-inch diameter aperture and which is designed to resolve 1/10th of a second of arc. Stratoscope II is intended for astronomical stellar and planetary studies from an altitude of 80,000 feet. . . **Charlie Edwards** and his wife, **D. J.**, live in Royal Oak, Mich., with their youngsters, **Martin**, 17, **Meredith**, 13, **Marcia**, 10, and **Malcolm**, 6. **Charlie** is the assistant to the Executive Vice President of the Bendix Corporation and is an Elder in the Presbyterian Church.

Those who attended the Reunion will recall **Bob** and **Marion Gould** as being the high-flying members. They brought **Charlie Edwards** to the Reunion in their Beechcraft Bonanza (Gould's Commuters' Airline). **Bob** is an Engineering Supervisor with the Sperry Gyroscope Company, and he and **Marion** live with their 9-year-old son, **Bobby**, in Uniondale, N. Y. **Bob** is also active on the M.I.T. Educational Council. . . No reunion would have been complete without **Wally Schuchard**. **Wally** is vice president-engineering, of S. H. Couch Company, Inc., and lives in Hingham, Mass. **Wally** and **Peg** have six children, **Ricky**, 17, **Peggy**, 15, **Peter**, 12, **Bobby**, 9, **David**, 8, and **Nancy**, 5. . . **Kenneth** and **Bebs Bodger** and their youngsters, **W. K., Jr.**, 7,

and **Virginia**, 8, are Dearborn, Mich., residents. **Kenneth** is assistant manager of the Systems Engineering Department of the Ford Motor Company, and he has served on the school board and on various ASME committees.

As anyone who has ridden on the Garden State Parkway can testify, **Divo Tonti** has served as a very capable Executive Director of the New Jersey Highway Authority. **Divo** and **Doris** are residents of Paramus, N. J., along with their children, **Sherwin**, 9, and **Bennett**, 6. **Divo** is trustee of both the Central Unitarian Church and of the YMHA of Bergen County, a most unusual combination of jobs, and I hope that **Divo** will sometime inform the readers of this column just how he happened to be trustee for both of these organizations. In addition, he is on the Board of Governors for the New Jersey Children's Home Society, and is a Director of the American Bridge, Tunnel and Turnpike Association. . . **Nick** and **Louise Williamson**, together with their children, **Ruth**, 11, **Louise**, 9, and **Nick, Jr.**, 7, live in Nutley, N. J. **Nick** is advertising manager for the Electronic Tube Division of Allen B. DuMont Laboratories, Inc., and is on the Nutley Civic Council.

Our Class' original Secretary, **Gary Wright**, and his wife, **Marion**, are residents of Springfield, Mo., along with their youngsters, **Gary**, 16, **Judy**, 15, and **Janet**, 11. **Gary** has already retired from one business and is now President of Wright-Weeks, Inc., and is active in the Kiwanis and the Chamber of Commerce. He is also a member of the M.I.T. Educational Council and does work in vocational guidance, as well as other young people's work. . . **Bill** and **Peggy Kather**, together with their daughters **Joan**, 17, and **Diane**, 15, are residents of Chappaqua, N. Y. **Bill** is manager of the chemical and metallurgical sales of the International General Electric Company. He has a large territory to cover and recently went to Europe, Japan and South America in connection with this work.—**Alvin Gutttag**, Secretary, Cushman, Darby & Cushman, American Security Bldg., Washington 5, D. C.; **Dr. Samuel A. Goldblith**, Assistant Secretary, Department of Food Technology, M.I.T., Cambridge, Mass.

'41

Happy New Year! If 1961 comes, can the 20th Reunion be far behind? Keep in mind the dates—June 9 through 11—and the place: the Bald Peak Colony Club on Lake Winnepesaukee, N. H. Plans are under way to make this the biggest and best reunion yet; we hope to see all of you there.

The news for the month comes primarily from the Information Bulletin of the Sperry Gyroscope Company. **Lloyd Wilson**, engineering section head for primary standards and measurements in the electrical measurements laboratory, presented his paper entitled "A New Space Age Challenge—Standards and Electronic Measurements" at the 1960 Conference

on Standards and Electronic Measurements in Boulder, Colo., at the National Bureau of Standards. At the same meeting, Lloyd was chairman of the technical session on "Current and Future Problems in Standards and Electronic Measurements." Lloyd has since been appointed to a committee to study ways and means of forming a standard laboratory association to cope with problems brought out in the discussions. . . . **David Kenyon**, a research engineer in the advanced engineering department (marine) is the author of a paper entitled "Range Performance of Marine Radar."

The M.I.T. Club of New York invites all alumni, residents of New York or not, to join and enjoy its facilities and activities. These include dining rooms, a cocktail lounge, monthly luncheons for each class, a series of management seminars, and many other events of interest to M.I.T. men. The club is also looking into the feasibility of group insurance plans, group investment plans, and group trips abroad for its members. Membership is \$12.50 per year; for further information, contact the club at the Hotel Biltmore, 43rd St. and Madison Ave., New York 17.—**Ivor W. Collins**, Secretary, 9 Sunnyside Drive, Dalton, Mass.; **Henry Avery**, Assistant Secretary, Pittsburgh Chemical Co., Grant Building, Pittsburgh 19, Pa.

'42

Charles E. Ruckstuhl was recently appointed by the Bendix Corporation as its representative in the Boston area. Charlie first joined Bendix in 1948 as a representative of the International Division of the company in South America. From 1950 to 1952, he was a technical supply administrator for Radio Free Europe. He rejoined Bendix in 1952 on the staff of the Pacific Division and recently transferred to the East Coast. Immediately after graduation from the Institute he was on the staff of the Underwater Sound Laboratories of M.I.T., and then spent a year with Doelcam Corporation. Charlie is a member of the American Rocket Society, American Astronautical Society, Institute of Radio Engineers, Armed Forces Communications Electronic Association, American Ordnance Association and the American Radio Relay League.

The New York theatre reviews bring **Robert H. Rines** back into these columns for the second month in a row. Bob wrote the background music and some songs for the show "Drums Under the Windows" now playing at the Cherry Lane Theatre in New York City. The show is an adaptation by Paul Shyre of Sean O'Casey's play. Bob's immediate previous contact in this line was because of the fine music he wrote, and the way in which he directed, a show presented by the Belmont Dramatic Club in 1959. His music writing activities, however, started long before graduation and continued with writing the scores for two wartime camp shows in England. In the late 40's Bob collaborated with Professor Kermit Morrissey in the writing of several hymns, one of which was sung for the

first time at the 1953 Easter Service of the First Church in Belmont, Unitarian.

Some notes from the Alumni Register tell us that **James M. Beall** has left LaPaz, Bolivia, to join the U. S. Weather Bureau in Washington, D. C. . . . We also note that **George A. Thompson** is now in the Geophysics Department at Stanford University in California.

Recent long distance moves were made by Major **Clarence H. Fogg, Jr.**, from San Bernardino, Calif., to APO 238 out of New York City; by **Robert V. Higdon** from State College, Pa., to Los Angeles; by **Gideon Hofmann** from Altadena, Calif., to join Uniconn, Inc., on Opportunity Road, in Plymouth, Conn. We also note that **William W. Kellogg** has come back to this country from The Hague, Netherlands, and is now living in Los Altos Hills, Calif. **Bernard A. Smith** has crossed the continent from Arlington, Va., to Coronado, Calif., and Capt. **Theodore H. White** has moved in the opposite direction from San Francisco to Philadelphia.

Happy New Year and good winter sports, both indoors and outdoors, from **Ed Edmunds**, **Bob Keating**, **J. J. Quinn** and **Lou Rosenblum**, Secretary, Tech/Ops, Burlington, Mass.

'43

A letter from **Howard Bollinger**, as Chairman of the Membership Committee, invites our classmates to join the M.I.T. Club of New York, located at The Biltmore Hotel. The Club's facilities seem well worth the nominal \$12.50 annual dues for non-New-Yorkers. Checks should be mailed to The M.I.T. Club of New York, The Biltmore Hotel, New York 17, New York, together with address and job data for their directory. **Howie** is Assistant Treasurer of the Club; **J. Robert Gunther** is a Vice-President. . . . Dr. **Robert W. Hull** of Basking Ridge, N. J., was named to the newly created post of vice president in charge of reliability in the Semi-conductor Division of General Instrument Corporation of Newark. The company said it believes the post is the first of its kind in the semiconductor industry. Dr. Hull will head a department to analyze and evaluate process techniques, materials and procedures at the division's plants in Newark, Jamaica, Long Island, and Woonsocket, R. I. The new department will use computers to analyze test data. Formerly director of the division's research department, Dr. Hull was graduate in chemistry from Yale and received his Ph.D. in Physics with our class.

Arthur W. Plummer, Assistant Vice President and Director of Research and Development of The Hudson Pulp and Paper Corporation, South Windham, Maine, presided over a major technical session at the TAPPI Engineering Conference in Jacksonville, Fla., in October. A graduate of The University of Kentucky, Mr. Plummer received his master's degree with our class. . . . Captain **Frank W. Taylor**, USN (Ret.), who received his master's degree with our

class in Naval Construction and Engineering, was appointed as assistant to the engineering vice president of Consolidated Systems Corporation, an associate company of Allis-Chalmers, Bell & Howell, and Consolidated Electrodynamics. Previous to his retirement from the Navy on September 1, 1960, Captain Taylor was head of the Auxiliary Ships Branch, Bureau of Ships, and had technical and administrative control of new construction, maintenance and alteration of the Navy's auxiliary ships.

Change of address notices reveal that **Joseph J. Parks** is now living in Battle Creek, Mich.; **Antonio Badia** is in San Juan, Puerto Rico; **William G. Pool** is in Phoenix, Ariz.; **Eugene W. Place** is in Salinas, Calif.; Captain **Charles H. Meigs** is in Philadelphia, Pa.; **David B. Swinton** is now in Camarillo, Calif.; **Wesley H. Osterberg** is now in Boulder, Colo., and **Lewis Housman** has moved to Winthrop, Mass.

We regret to announce that **Eugene S. Pulk**, who received his Master's Degree with our class, passed away on October 5, 1960 at his home in Wellesley Hills, Mass. A graduate of the United States Naval Academy and a retired naval officer, he was an engineer with International Business Machine Company.—**Richard M. Feingold**, Secretary, 10 North Main St., West Hartford 7, Conn.; Assistant Secretaries: **Christian J. Matthew**, Arthur D. Little, Inc., 314 Battery St., San Francisco, Calif.; **John W. McDonough, Jr.**, 413 North Miami St., Wabash, Ind.

2-'44

It appears this month I have run into a larger number of the class than has been the case recently. **Bob Peck** has just established Controlled Environment, Inc., with manufacturing space here in Needham. He advises that his company specializes in the manufacture and installation of "clean rooms." Bob was in New York as Chairman of Asbestos Construction, a distributor of Johns-Manville products which became so successful that Johns-Manville decided to buy them up. Bob advises that this gave him his chance to come back to Boston, and start his new company. Before leaving New York, Bob ran into **Norm Sebell**, who had just returned from England where he had been purchasing some new machinery for Brockdon Cut Sole Co. The equipment is part of a new approach to the manufacture of sole leather. Norm is still the gay bachelor, and lives in Manchester, N.H.

A sad note to report is the passing of **George Rosenblatt** who passed away November 2. He was with Scudder Food Products in Alhambra, Calif.

A couple of clippings bring news of **Ralph Lamade** who has been appointed process engineer with Guild Plastics, Inc., of Cambridge. Prior to joining Guild, Ralph had been with Celanese Corp., and Arthur D. Little, Inc. . . . **Ken W. Joseph** has joined the Fiber Products Division of the Kendall Co., of Walpole, Mass. According to the note, he will concen-

trate on the design, development and installation of new equipment for fiber processing. Prior to moving North, Ken has been living in Granby, Conn., with his wife and two children.

Ran into **Burt Bromfield** who advised that his company had just launched their first ship, a ferry boat. They have another on the ways which is scheduled to be launched in May. He has run into several of the fellows in the class also: **Bruce Bogert** who went on to get an M.S. and a Ph.D. is with Bell Telephone Labs in Murray Hill, N. J. He and the family live in Plainfield, N. J. . . . **Art Fuerman** was married last year and lives in Phoenixville, Pa., where he runs Art Auto Supplies and also markets Todd Mufflers which he manufactures himself.

A little international political news is that **Gonzalo Docal** who was in Havana with U. S. Rubber is now with their International Division in New York City. I gather that Gonzalo is happy he was able to leave when he did. . . . Saw **Andrew Corry** who is with Boston Edison in their Electronics Division which is part of their Central Laboratory. Andy, wife Mildred, and three children have just moved into a new home in West Newton. He advises that he often runs into **Lou Demarkles**, **Frank Chin**, and **Newt Texeira**. He also reports that some time ago he had **Pierre Boucheron** call on him, Pierre was working out of New York City with General Electric on a market survey on special purpose computers.

While having lunch at the Coop, I ran into **Robert Halfman** who is living in Lexington, and working at the Institute in the Aeronautics Department. He noted that **Garobed Zartarian** lives in Lexington also, and has just recently joined the Aeronautics Department. He had recently heard from **George Fotieo** who has recently been transferred to Orlando Florida with Martin Co., and George is definitely still the gay bachelor.

I talked to **Martin Annis** on the phone; he is now with American Science and Engineering Inc., in Cambridge. They specialize in R & D in the space field. He is working primarily in physics with them, having received his Ph.D. in Physics from Tech in '51. Martin advised that **Carolus Cobb** who graduated in course V is also with the same company doing research work in chemistry.

I was talking to **Bill Tierney** on the phone, and he is working as an M. E. in the Electromechanical Section of the U. S. Coast Guard 1st Naval District. He says that he is the only M. E. in the district, and with the geography involved, he is quite busy. He is still single, and is looking forward to the 20th now that he is on the East Coast and can attend a little more easily.—**Paul M. Heilman**, Secretary, 131 Lindbergh Ave., Needham, Mass.

'46

The reunion plans are now all set and you should have received a mailed notice by now. If you haven't it's because of an oversight on the committee's part and I

suggest you write me at the address below and let us know of our error.

Bob deFasselle formed a partnership ten years ago and the firm of Heisterkamp and deFasselle, Consulting Engineers, Bedford, Ohio, is doing well. Their major field of activity is development of processes, facilities and equipment for industrials, mostly in the heat transfer and fluid flow category. About five years ago they set up a model shop and laboratory for the construction and testing of prototypes and pilot units. This has now reached the stage where it accounts for 85 per cent of their business. Much of their work in recent years has been connected with processes for plastic film industries, and in connection with improvements and new processes for casting so-called "super alloys" by the lost wax and frozen mercury methods. Bob is also president of Technical Designs, Inc., a concern involved in manufacturing a standard line of compressed gas drying equipment and custom designed heat transfer units. Bob doesn't think he will come to the reunion because he feels it will be an affair where the wives go one way and the husbands another. Let me assure you, Bob, and anyone else holding similar beliefs, that if prior reunions are any measure, such will not be the case. With the exception of a one-hour class meeting the weekend is entirely a family affair. When not working, Bob's main hobby is hunting and fishing, and he has been on several big game hunts. The deFasselles have just completed their new home on five acres of land. The address is Timberidge Trail, Gates Mills, Ohio.

George W. Phillips, Jr., is living at BOQ E-58, U. S. Fleet Activities, Yokosuka, Japan. He is a Lieutenant Commander in the U. S. Navy and will be promoted to Commander in 1961. He is Hull Superintendent at SRF, Yokosuka, Japan. His assignments cover three years in guided missiles, four years in submarines, and three years with the Atomic Energy Commission at Arco, Idaho. He received his B.S. in Mechanical Engineering (U. S. Navy P.G. School-Monterey) in 1954, and his M.S. in Nuclear Engineering (U.S.N. P.G. School, Monterey) in 1956. He has travelled in South America, Samoa, Tahiti, Australia, New Zealand, Hong Kong, Southeast Asia. He is a contributor of papers published by the Japanese Society of Naval Architects on Submarine Construction. He is also an advisor to MAAS Japan and Japanese Maritime Self Defense Force on submarine matters. He is considering a job as nuclear engineer with Nippon Kokan Corporation in Tokyo. He expects to be transferred to Continental U. S. in 1961, and so hopes to attend the reunion. He suggests that two or three months prior to the reunion a list of those tentatively planning to attend should be sent out. George has a daughter, Maribeth, aged eight. . . . **Hillman Dickinson** is now living at Ft. Leavenworth, Kansas, and is assistant professor of Physics at USMA. He is now a Captain in the U. S. Army. Hillman heads the West Point Ski Patrol. He has had various articles on instabilities in plasmas and applications to thermonuclear and astrophysical research

published. He is married and has two children, a boy and a girl. . . . **John P. McLarty** writes that he has been executive secretary for 1959-60 of the Engineering Council of Birmingham and Jefferson County. He is living at 1504 Valley Place, Birmingham 9, Ala.

Hector T. McVey of 28 Long Lane, Malvern, Pa., states that he joined the J. J. Henry Co., Inc., in 1954 as project engineer in the New York office. He transferred to Philadelphia in 1956 to head Hull & Machinery Scientific and was named chief engineer in 1958. He has five children at present. Hector presented a paper on Fin Stabilizers for merchant ships in March of '59 before the Philadelphia Section of the Society of Naval Architects and Marine Engineers. He also presented a discussion of a Gas Turbine paper in March of '60 before the Society of Mechanical Engineers meeting at Houston, Texas. He is a member of Panel M-16, Modernization of Propulsion Shaft Systems of the Society of Naval Architects and Marine Engineers. . . .

A. Carl Nelson, Jr., lives at 948 Fair Oaks St., Bethel Park, Pa. He is with the Westinghouse Electric Corp., as a fellow scientist and is involved in Mathematical Statistics. He previously was an instructor in math until 1956, then senior scientist until October of '59, at which time he was promoted to fellow scientist. Carl has four boys. He received his M.S. degree in Math in '48 and did considerable graduate work at the University of North Carolina, and taught for six years at University of Delaware. . . . **Gunther S. Fonken** of 3707 South Rose St., Kalamazoo, Mich., is with the Upjohn Co., in Kalamazoo, as head of a Biochemistry Research Section, working with microbiological transformations of steroids. Gunther has just returned from lecturing at Laval University, Quebec, and The National Research Council in Ottawa. Gunther spends his spare time raising Dachshunds—"with the finest personalities in the Midwest (Cedar Hill Dachshunds)—please order well in advance."

Bob Hughes is now a self-employed Attorney at Law. He entered general practice of law in '58 after 10 years as reporter for the San Francisco Chronicle. Bob is married and has five children, and lives at 6880 Saroni Drive, Oakland 11, Calif. . . . **C. A. Rigby** is living at 26 Meyer St., Oakland, Johannesburg, South Africa, and is a Consulting Civil Engineer. From '46 to '55 he was head of Engineering Division at National Building Research Institute in Pretoria. . . . **Robert Goodstein** of 404 158th Place, S.E., Bellevue, Wash., is with Aero-Space Division of Boeing in Seattle, as a Research Specialist—inertial navigation-analysis, test and evaluation. From '49 to '53 he was teaching and doing grad work at Iowa State College. From '53 to '55, at Boeing; '55 to '58 teaching and grad work again and then back to Boeing in '58. Bob received his M.S. at Ohio State in '49, and Ph.D. also from Ohio State in '57, both in Engineering Mechanics. Bob has presented several papers, all in the Dynamics field. Bob would like to hear from former classmates and colleagues, and is going to

make the reunion. . . . **Robert W. Connor** is still a bachelor and is living at 3403 Laurel Ave., Manhattan Beach, Calif. He is with Norair, a Division of Northrop Corp., in Hawthorne, Calif., as Supervisor of Astro Systems.

Robert F. Nelson, Jr., is living at South Main St., Sherborn, Mass., and is with the Wayland Lab, Raytheon Co., as senior engineer in Product Engineering on Hawk Missile ground control equipment. He has three children, one boy and two girls. Bob is a member of an active Naval Reserve unit; NR Intelligence, Div. 1-1. He is studying Russian and advanced calculus in his spare time and expects to attend the reunion. . . . **William R. Lindsay** is with the Louisville Courier-Journal and Times Co., as Production Manager. This company publishes metropolitan morning, evening and Sunday newspapers and Bill manages the mechanical (production) departments involved in producing these newspapers. Bill is married and has six children—one boy and five girls. He lives with his family at 3012 Tremont Drive, Louisville 5, Ky. Bill attended the ten-year reunion and plans to attend the 15th.

William H. Hoops has been appointed plant engineer of Sperry Rand Research Center, being built in Sudbury, Mass. Bill has been working for Sperry Rand in New York and will be moving to Massachusetts. . . . **Dr. Robert B. Jacobs** of the NBS Cryogenic Engineering Laboratories was the Chairman of the 1960 Cryogenic Engineering Conference held last August at Colorado University, Boulder, Colo. . . . **Seward J. Kennedy**, who lives in Jackson Heights, N. Y., has been appointed regional assistant of Mobil International Oil Company for Northern and Southeastern Europe. He joined Mobil International in 1955 and worked in the company's office of general counsel. Seward earned his LL.B. from New York University Law School in 1951.

The Reunion Committee recently held a meeting, a brief report of which we are happy to give here. The reunion will be held at the Snow Inn in Harwichport, on Cape Cod, June 9 through 11. We expect to be able to provide transportation, leaving from a hospitality suite in a hotel in Boston on Friday evening for Snow Inn, and returning in time for the Alumni Day activities on Monday. The program for the reunion is shaping up very well. There will be a square dance, clambake, cocktail party and banquet, and we hope to have a very interesting speaker. . . . Happy New Year. We'll be back next month.—**John A. Maynard**, Secretary, 15 Cabot St., Winchester, Mass.

tions and private meeting rooms. Club membership is \$12.50 per year and checks should be sent to: Club Secretary, M.I.T. Club of New York, Hotel Biltmore, Madison Avenue & 43rd Street, New York 17, N. Y.

Recent promotions of classmates include two vice-presidencies. **Robert L. Silberman** has been appointed vice-president and manager of the Bakery & Chemical Division of Ekco Products Company (Canada) Ltd. Bob will direct the Canadian company's bakery equipment business as well as the operation of the company's four silicone resin glazing plants at Toronto, Montreal, Vancouver and Edmonton. Bob, his wife Jo, and their three daughters will reside in Toronto. . . . **Alden P. Taber** has been elected vice-president of the Babcock & Wilcox Company in charge of the Research and Development Division. B & W's research and development activities are particularly challenging because of their diversity: steam generation; atomic energy; refractories; control systems; and electronic equipment. Alden will make his headquarters at the company's Research Center in Alliance, Ohio, as well as maintaining an office in New York.

The National Academy of Sciences announced that **Dr. William J. Harris, Jr.**, has been appointed assistant executive secretary of the Division of Engineering and Industrial Research. He will help determine the need for extending Divisional activities into new areas of technical research. Bill previously served as executive director of the Division's Materials Advisory Board which provides, under contract, advice on materials research to the Department of Defense. . . . **Dr. James P. Hartnett** will be spending the 1960-61 academic year in the Near and the Far East, aided by two grants—one, from the Guggenheim Foundation, the other, a Fulbright scholarship. Jim is being accompanied by his wife and five children to the University of Tokyo, then to the Seoul National University of Korea, from there to India, and finally to the University of Alexandria in Egypt. The family plans to return home next summer and in September 1961, Dr. Hartnett will assume new duties as chairman of the Mechanical Engineering Department at the University of Delaware.—**Herbert S. Kindler**, Assistant Secretary, 128 Elatan Drive, Pittsburgh 16, Pa.; **Richard H. Harris**, Secretary, 26 South St., Grafton, Mass.; **Harry G. Jones**, Assistant Secretary, 94 Oregon Ave., Bronxville 8, N. Y.; **Robert R. Mott**, Assistant Secretary, Box 113, Hebron, Maine.

Cornell, Bob studied at Oak Ridge and the University of Buffalo, and worked for the NEPA Division of Fairchild. . . . From the Ohio Oil Company we learn that **James E. White** (Ph.D. 1949 in Physics) "will conduct independent comprehensive research . . . and act as company-wide consultant in several scientific fields," as research associate to the research director. He was formerly supervisor of physics at the Denver Research Center, where he will remain.

At the 1960 Cryogenic Engineering Conference at Boulder, Colo., in August, 1960, Messrs. V. S. Arpaci, **J. A. Clark**, and W. O. Winer of the University of Michigan reported on an analysis of the wall and fluid temperature responses during the pressurized discharge of a liquid from a cryogenic container. . . . From Norwalk, Conn., we learn that **Richard L. Saville** is currently president of the Connecticut Science Teachers Association. A Staples High chemistry teacher, he was selected to attend the Second National Youth Conference on the Atom, in Chicago in October, 1960, as a guest of the Connecticut Light and Power Company. The utility sponsored the attendance of 11 of the state's top science teachers and students. . . . **Dr. Ladislav Dolansky** is reported by Northeastern University to be an associate professor of research in communications there. A member of the faculty for eight years, he has written a number of technical articles about his research on the analysis of speech sounds. His most recent is to be found in the November-December issue of Audio Trans of the IRE.

Sorry for the brevity of the reports this month. A deadline is here, I'm on my way to Buffalo, and some additional notes are unavailable for the moment. As Bob and Ray used to say, "Write if you get work." For that matter, write anyway.—**Frank T. Hulswit**, Secretary, 14 Nadine Road, Saxonville, Mass.

'50

It is a pleasure to be your Secretary!! I am looking forward with great anticipation to renewing acquaintance with each of you whom I have known from the year '50 and those of you whom I have not met before. I would like to extend an invitation to each of you to send me some basic information about yourself relating some of the experiences that you have had since leaving M.I.T. This would be very helpful in up-dating our files and in contacting you on matters of particular interest. Also, I would like to suggest that whenever you are in New York, that you consider getting together with me at the Hotel Astor in Times Square where my office is located in the American Management Association's headquarters.

As an example of the kind of information you might send, I will bring you up to date on my own experiences. I started in '50 as an industrial engineer with Richard Hudnut Cosmetics Company and went to E. R. Squibb & Sons as industrial engineer and later as assistant to the Director of Domestic Manufacturing. I then

'48

Many classmates frequently pass through New York City on business trips. An ideal spot to meet friends is the M.I.T. Club of New York lounge. Club facilities also include a cocktail bar and dining room open daily from 10:30 a.m. to 7:30 p.m. The club is now conducting a membership drive to help expand facilities to include sleeping accommoda-

'49

The summer, 1960, issue of "Research Trends," a publication of the Cornell Aeronautical Laboratory, contains an article by **Robert J. Vidal**, XVI, entitled "Airplanes—Straight Up." The biographical notes show him to be project engineer for Stol/Vtol aerodynamic studies and head of the laboratory's supersonic wind tunnel section, Aerodynamic Research Department. Between M.I.T. and

took on line responsibility for the manufacturing of curtains and draperies at the Chase Mills Curtain Company as assistant plant manager. I have also gone into business, manufacturing architectural woodwork, and was involved in running a plant and business while doing some consulting in conjunction with this effort. Then in '57 I decided to settle down and so got married to my wonderful wife. At this time I joined the American Management Association where I am manager of the Administrative Services Division, responsible for sponsoring management development and improvement programs for executives throughout the country in the subject areas of data processing, systems and procedures, office operations, and management engineering and services. I believe this is one of the most exciting and satisfying jobs the country holds. For this reason, hope that I can share some of the thrill of AMA with you M.I.T. men who are interested in the general field of management. I have gone on to receive my M.S. degree in Industrial Engineering from N.Y.U. and am occasionally plugging away at my Ph.D. I have also done some teaching of Management Courses in Providence and at Rutgers in New Jersey. There was a time at one period of my "development" when I was very active in politics, but I have given that up for the side hobby of writing in the area of General Management and Administrative Management.

I look forward to receiving a similar report from each of you. See you soon.—**Gabe Stillian**, Secretary, 4 Biscayne Drive, Huntington, N. Y.

'51

On Saturday, September 24, 1960, **Charles Stevens** died suddenly as the result of a heart attack. Previous to his death he served as sales manager of the Stickney and Poor Spice Company. Surviving Charles are his wife Marcella and three children.

About a year ago **Arnold Rothstein** was a speaker at the Conference on Capitalizing on Technology using as his topic Operations Analysis of the Engineering Programs. At that time his title was Specialist, Operational Analysis, ANP Department, G.E. in Cincinnati. . . . **David Rowe** has been with a consulting firm in Hillsboro, Ill., ever since he finished a tour in the navy almost six years ago. He and Ginsy have two daughters. . . . **Melvin Rubin** is a senior engineer for Allied Research Associates, Inc., of Boston, working on weapon systems analysis under government contracts in Albuquerque. . . . **James Ryan** reports a promotion to supervisor in charge of Planning and Scheduling of Production, Colgate Palmolive. He and Marie have two sons and a daughter in their Pompton Plains, N. J., home. . . . **Roy Sachs** is now assistant professor of floriculture at U.C. L.A. He and Marilyn now have four youngsters. . . . **Winfield Salter** earned his M.S. from Columbia in February of 1959. He has moved from the New York office to the San Francisco office of Par-

sons, Brinckerhoff, Quade, and Douglas, consulting engineers. He and Jeanne and two children live in San Rafael. . . . **El-liot Saltzman** opened his own architecture practice over two years ago and reports that he is doing fine. He and Natalie live in Brooklyn. . . . **John Sampson** has been working on his Ph.D. at Tufts University. He, Georgette, Thomas, and Gail live in Saugus. . . . **Arthur Schein** is a registered architect in Boston with Sumner Schein, Architect and Engineer. He and Carole have a daughter and live in Newton Highlands. . . . **Don Schlatter** reports that last April his wife, Barbara, and two children were in an auto accident on their way to meet him at the airport. The children were not hurt but Barbara suffered a broken leg. Don is now on the Board of Trustees of the Toledo Metropolitan Y.M.C.A. and is chairman of the Board of Managers, Central Y.M.C.A.

Lawrence Schneck is a senior engineer in the Instrument Systems Department, Aeronautical Equipment Division of Sperry Gyroscope. He and a colleague were awarded a patent last spring for an automatic pilot and manual booster control system for dirigible craft. . . . **Dave Schoeffel** completed his master's in business administration at American International College through night school. He and Pat have three youngsters in their East Longmeadow, Mass., home. . . . **Roger Schonewald** is working for Electric Boat Division and living in Norwich, Conn., with wife, Viola, and son, Roger. . . . **Bernard Schwartz** is currently with RCA in Somerville, N. J. He and Bernice have one son and two daughters. . . . **Howard Schwartzman** reports that instrumentation and process safety duties for Procter and Gamble's Overseas Engineering Division have taken him to Caracas, Montreal, Mexico City, and Manila. . . . **Clint Seeley** finished his residency at the Massachusetts General Hospital last September. He and Gail and Laurie spent last March camping in a Microbus in the Everglades and Florida Keys. They returned to Belmont in time to welcome David to the family on May 8. . . . **Harold Shapiro** has been promoted to the position of associate professor of mathematics at N.Y.U. . . . **G. Norris Shaw** is now manager of the Washington, D. C., office of the Hughes Tool Co., Aircraft Division. He and Barbara have one son, David and one daughter, Debbie. . . . **Bill Shenkle** finds time aside from serving as one of our class agents to be general manager of the Instrument Division of Rockwell Manufacturing Co., world's oldest manufacturers of parking meters. He and Betty live in Tulsa with Valerie Jo and Jeffery. . . . **Henry Sherman** is another classmate living in Tulsa, where he and Bette are raising three daughters. . . . **Joe Sherrill** is a partner in a law firm in Wichita Falls, Texas, which specializes in taxation, corporate, probate, oil, and gas law. "Most exciting," he says. He and Nancy have a boy and a girl. . . . **Robert Short**, a captain in the Air Force, is now at Texas A & M for studies to qualify as weather officer. He and Mary Lucia have one son, Matthew Christopher.

George Shumway earned his Ph.D. in Oceanography in June, 1959, from the University of California, Scripps Institution of Oceanography. He and Anne have four youngsters. . . . **Kalman Shure** is working on all aspects of shielding reactors for naval application at the Bettis Atomic Power Laboratory. He and Minna live in Pittsburgh and have two children. . . . **George Siefert** is special assistant to the head of the digital computer department, Electric Boat Division, General Dynamics. He, Evelyn, and Paul live in Groton, Conn. . . . **Ronald Silver** is a mechanical engineer at the Livermore Pool Type Reactor. He and Sheila live in Pleasanton, Calif., with Michael and Ruth. . . . **Philip Simmons** reports no change in his activities from his home in East Lyme, Conn. He and Judith have four children. . . . **Bob Sims** is with Bendix Research Laboratories in the design and development of computing and control equipment. He and Twila have a son and a daughter. . . . **David Sinizer** is a contributor to a new volume on nuclear metallurgy published by the Metallurgical Society of AIME. . . . **Tom Slaughter** is owner and operator of Slaughter Ranch in Roswell, New Mexico. He ran for the New Mexico Legislature as a Republican; results of vote unknown. He and Jackie have two daughters. . . . **Howard Smead** was promoted to assistant manager of the Remington Rand Univac advanced Navy computer department in St. Paul. Formerly he served as manager of the Univac office in Washington, D. C. From 1953-56 he served as military relations engineer with the Fairchild Engine and Aircraft Corporation. . . . **Lloyd Smiley** is director of engineering for the Western Printing and Lithographing Co. He, Connie, and their four children live in Poughkeepsie, N. Y. . . . **Paul Smith** is chief engineer of I.T.T. Components Division, Semiconductor Department. He and Gretchen live in North Caldwell, N. J., with their three children. . . . **Stanley Southwick** is with Humble Oil engaged in well log interpretation. He and Ruth and their three live in Houston. . . . **Denny Spangler** is in Scottsdale, Ariz., as a New Products Engineer with A. Research. He and Louise have two daughters.

Hank Spaulding has been away from his Lexington home about a week in every month working on the development of a new city in Laguna Beach, Calif., as part of his duties with Cabot, Cabot, and Forbes. He and Ann have three sons. . . . **Bernard Spring** reports that after four years of teaching at the Institute he has become Research Architect for Weyerhaeuser Company, working on the design of new methods of home construction. He and Phyllis have three children. . . . **William Stanfield** is Supervisor of Controls Design in the Electronics Division of Chance Vought aircraft. He and Page have two daughters and live in Dallas. . . . **Thomas Stansfield** is now with the National Research Corp., in Cambridge. He is taking graduate work in Course XV. He and Edith live in Concord with their three children. . . . **James Staples** is a Group Engineer in Industrial Engineering with the Martin Co.

in Orlando, Fla. He and Martha have two children. . . . **Richard Staubach** is now in Wapping, Conn., where he and Margaret are raising four youngsters.

Albert Stefanick is responsible for all phases of all testing on all nuclear and missile submarines at the Electric Boat Division of General Dynamics. His title is Test Manager. He and Florine have three. . . . **Louis Stern** is still with Pames and Moore, Soils Engineers, in San Francisco. He and Mindy and Michael and David live in San Mateo. . . . **Malcolm Stern** is an architect with Architects and Engineers at the University of California. He and Marcia share their Berkeley home with three children. . . . **Charles Stokes** is on a Fulbright Lectureship in Ecuador and Argentina. He and Anne have two sons. . . . **Melvin Stone** is still at the M.I.T. Lincoln Labs working on radio propagation studies. He and Shirley live in Stoneham with their son and daughter. . . . **William Stookey** is the City Engineer for the City of Fullerton, Calif. He and Betty and Christopher live, of course, in Fullerton. . . . **Dan Sullivan** moved to N.Y.C. over a year ago where he is working for Lathrop Douglass, FAIA. He and Louise have three now and live in Crestwood.

William Sullivan is still busy supporting the sales of Boeing 707's and 720's and is living in Seattle. . . . **Sandy Sussman** and Marlene and Stephan moved into a new home in Jericho, L. I. . . . **William Sutherland** is now living in Houston with Barbara and their three youngsters. . . . **Louis Sylvia** reports that after eight years' heavy construction experience with DuPont he is now doing research work on new products at DuPont's Market Development and Customer Service Laboratories in the position of Technical Representative. He and Mary Jean and Richard and Mary Lou live in Wilmington. . . . **Tony Tabak** is now living in Melrose, Mass., where he and Eleanor are bringing up Leon and Andrew. . . . **Leonard Taigman** is contract manager for the Advanced Titan Program at Martin in Denver. He and Jo and Michael live in Littleton, Colo. . . . **Joseph Tamsky** left his post as planning director in New Britain, Conn., to assume duties as deputy director of Hartford's Redevelopment Agency. Earlier he served in city planning offices in several Pennsylvania communities. He and Miriam have four children.—**Richard W. Willard**, Secretary, Box 105, Littleton, Mass.; **Robert S. Gooch**, Assistant Secretary, 407 Danciger Building, Fort Worth, Texas.

'52

Believe me, I have a full mail box this month, and thanks to all of you for filling me in on what you are doing. Nice letter from **Ed Margulies** in Albany, N. Y., where Ed is now a fourth year resident doing surgical training at the Albany Hospital. Ed finishes up his training next year, and reports reading a paper at this year's meeting of the American College of Surgeons on some aspects of the surgery of

chronic liver disease. . . . **James Stockwell** is in Cambridge, Mass., as executive vice president and treasurer of ADAGE Inc., and mentions he is working on the Second Century Fund Boston area drive, for M.I.T. . . . **Paul Seevers** is with IBM Data Systems Division in White Plains, N. Y., as a technical specialist in financial planning and is living in Pound Ridge, N. Y.

Seems that a good many classmates are teaching or are affiliated with various universities in interesting sounding positions. **Bill Hoey** is an assistant planner in consulting service for small cities, and also working on a Metropolitan Transportation Plan for Eugene Ore., at the Bureau of Municipal Research, University of Oregon, in Eugene, Ore. . . . **Roger Borden** is an assistant professor of Mechanical Engineering at Worcester Polytechnic Institute. . . . **Robert McCord** is at Penn State as director of Continuing Education in Engineering, and mentions that **Al Jacobson** is now associate dean of engineering there. . . . **Ken Gordon** is an associate professor of chemical engineering at the University of Michigan in Ann Arbor. . . . And from Saskatchewan, Canada, **Herbert Ratz** writes that he is an assistant professor of electrical engineering at the University of Saskatchewan. . . . **Louis Lambert** is a senior laboratory supervisor in Columbia University's Electronics Research Labs Radar Lab, doing research on electro-optical devices, elastic vibrators, and tropospheric propagation. He has been doing joint experiments with M.I.T. Lincoln Labs, and has published several papers on two-dimensional electro-optical radar techniques. . . . **John Dixon** is in Pittsburgh as an assistant professor of Mechanical Engineering, having received his Ph.D. at Carnegie Institute of Technology.

Edgar Gutoff is with Polaroid Corp., in Waltham, Mass., as an emulsion development engineer and has published "Effectiveness of mixing tanks in smoothing cyclic fluctuations" in the AIChE Journal, June '60, and "Equilibrium absorption of heterogeneous polymers" with Prof. E. R. Gilliland, in the Journal of Physics and Chemistry, April '60. . . . **Charles Mathier** is with General Electric, M.S.T. G. & G. (I'm not sure what the letters stand for, but I'm only a reporter.) in Lynn, as a systems designer and programmer for their IBM 704. He mentions that **Brian Moore** is now a Captain, USAF, stationed in Alaska. . . . **Harold McAleer** is with General Radio Co., in Concord, Mass., as a development engineer in the Frequency Control Group working on digital equipment for precise time and frequency measurement, and has given papers to Electronic Industries, General Radio Experimenter, and Electronics. Mentions that **Werner Sievers** is with RCA in Burlington, Mass., **Bill Rusch** with Sanders Associates in Nashua, N. H., **Gene Arciprete** with A. D. Little in Cambridge, and **Howard Rockstrom** with ECCLE in Cambridge. . . . **Bob Krullee** is in Paramus, N. J., with I.T.T. Comm. Systems Inc.; on the Scientific Staff of the Vice President and Director of Engineering; doing communications research and development; and participated in a paper on satellites at Globecom in Washington. . . . **Hugh**

Robinson is with United Shoe Machinery Corp., in Beverly, as a group leader in research and development on harmonic drive for hermetically sealed power transmission. Hugh announces his marriage on May 28, 1960, to Joan Van Wezel from Holland. . . . **A. Gordon Wheeler** writes from Cazenovia, N. Y., that he is a partner of Stearns and Wheeler, Engineers, specializing in design of water, sewage, and industrial waste treatment plants, and mentions seeing several classmates at the recent water pollution control meeting in Philadelphia.

Bob Lurie is now with Ionics, Inc., in Cambridge, doing research and development on the fuel cell, and has given a paper on same for the American Rocket Society. Bob and Nancy and Rachel and Joe are now living out in Waltham. . . . **Gus Rath** has recently joined Raytheon back in New England and is househunting in the Lexington area as this column goes to press. Gus will be working with **Jim Davidson** in Raytheon's Analysis Section.

Activity is just slowly commencing on preparing for our 10th Reunion, with **Sandy Isaacs**, Chairman. Among other items, we will probably run another poll of classmates for various statistics and any suggestions for same would be welcome (write address below). And with this note, I'll sign off this month. Remember, this column is filled only with what you write in! So let's hear from all of you, at least once a year.—**Dana M. Ferguson**, Secretary, 242 Great Rd., Acton, Mass.

'53

Am very sorry to announce that **Donald Trask**, a fellow classmate and graduate of Course X (Chemical Engineering), died early in August of last year. I'm sure all of us regret this loss and join together in expressing our sympathy to his family. For those of you who would like to forward a note to the family, I include a forwarding address: 1061 Kedith Street, Belmont, Calif. . . . On the brighter side, the news of **Gil Gardner's** promotion to Captain (in the U. S. Air Force) is indeed delightful. Gil, Janie and the five offspring have left Dayton, Ohio, and are now living in Catskill, N. Y. . . . More promotions: **Jim Howard** has left Raytheon to become sales manager of Arthur C. Ruge Associates, Inc., of Hudson, N.H. . . . **James Crowley** has been promoted to district manager of the New York and Washington sales area of the Air-Maze Corporation of Cleveland, Ohio. In this new position Jim will be responsible for all liquid and air filter sales activities in the eastern seaboard district. Jim has been with the firm for three years. Prior to that he worked for Link-Belt Co., in Philadelphia, did two years of graduate work at the Wharton School of Finance and Commerce (University of Pennsylvania), and spent a tour of duty with Uncle Sam. And, to top it off, he and his wife Terese Ann have three children. . . . **Mike Levy** founded a firm called Dielectric Products, Inc., some three years ago and has received much of the

credit for the new company's phenomenal growth and many innovations in plastic uses invaluable to the national defense effort. Mike left Raytheon in 1957 to start his firm which has become a pioneer in the field of molded plastic components requiring unusually close tolerances, particular electrical properties and ultra-high resistance to temperature and altitude. Congratulations, Mike. . . . At the 1960 Cryogenic Engineering Conference held in Boulder, Colorado, this past August, **John Harding** presented a discussion of a cryogenic gyroscope; John is presently working at the California Institute of Technology. . . . **Bob Lerner** who is now working at Lincoln Laboratory, M.I.T., presented two papers at the 16th National Electronics Conference held last summer. The first one was entitled, "Modulations and Signal Selection for Digital Communication," and the other one was "The Design of Data Transmission Systems." . . . Another classmate, **Donald Smith**, also participated in the same conference and delivered a paper on comparison of liquid pumping and gas compression in gas-producing oxygen plants.

Bill Haberman is now entering his third year as a control systems engineer with Avco Corp., here in Wilmington, Mass. Following graduation in '53, Bill took his commission in the Air Force, completed a two-year tour of duty, and then returned to Tech for his S.M. in course XVI, plus raising three boys in the meantime. . . . **John Morgenstern** is also in this area. John, his wife and two youngsters are living nearby in Lexington, and he is a staff engineer in electronics with National Company. His work requires extensive travel, or as he puts it, "All over the damn place." . . . One classmate, **Bob Gellert**, is in the investment business with United Continental Corp., and is living in Hartsdale, N. Y. He has been with United three years, and prior to that spent four years with Boeing Airplane Co. in Seattle, Wash., as a costs and schedules engineer. He and Rosa (a graduate of Cornell, and the Harvard-Radcliffe Program in B.A.) have one small daughter. . . . **James Peters** is "across the waters" at Louvain, Belgium, and is a full Professor of Mechanical Engineering at the University of Louvain. Apparently, he has traveled extensively, all over Western Europe and England, and written a number of texts and articles during the past seven years.

Must stop now. . . . Please drop me a note.—**Martin Wohl**, Secretary, Room 1-131, M.I.T., Cambridge, Mass.

'54

News arriving with the New Year is mostly about members of the class making their marks in industry. **Phil Sayre** has been promoted to technical superintendent of the Ashtabula chemical plant of the General Tire and Rubber Company. . . . **Charlie Prince** has been made technical service manager of the Metal Division, New Jersey Zinc Company, New York City. . . . **Joe Hurley** has been transferred to Corning, N. Y.,

by the Corning Glass Works, where he is now a senior process engineer in that company's technical products division. . . . **Dick Rogers** is now on the engineering staff of the General Radio Company, West Concord, Mass. . . . **Bob Armentrout** is toiling for the Leeds and Northrup Company in San Francisco. . . . **Terry Palmer** is currently located at the Chemical Corps Proving Ground, Dugway, Utah.

In the world of education, **Ed Hofstetter**, having added a "Dr." to his name, is still giving his all for Tech. . . . **Dominick Sama** has been named an associate professor and acting head of the Department of Chemical Engineering and Paper Technology at the Lowell Technical Institute, Lowell, Mass.

One social note has come to our attention. **Alex Paulsley** married Barbara Hearne in Abington, Pa., on September 17. The Paulsleys are living in Syracuse, N. Y., where Alex works for the General Electric Company.

Dick Hayes, who is an Air Force captain currently assigned to NASA headquarters in Washington, was telling us the other night, over pizza and beer, that he and two other M.I.T. graduate students have won the 1960 American Rocket Society Annual Award for the best paper written by graduate school students on a subject related to astronautics. The award was made at the society's Annual Awards Dinner on December 7 in Washington, D. C., and marks the first time that Tech grads have received the prize. Dick was among the first group to receive master's degrees in astronautics from Tech last June. Dick also informed us that **Fred Zappala** is working for the Raytheon Corporation in Waltham, Mass.

The M.I.T. Club of New York has sent out its annual invitation to join its group, and for those of you who live near or often travel to New York, it might well be worth your while. The club's facilities are many and varied. The annual dues are \$12.50, and complete information can be obtained by writing to the M.I.T. Club of New York, The Biltmore Hotel, New York 17, N. Y. And speaking of traveling, many of you probably find yourselves involved in business trips to Washington, D. C. While you're in the area, give me a call at Jackson 4-4593. You might be able to cadge a free dinner in return for a little class news.

Our illustrious president, **Bob Anslow**, has moved; in case you're inclined to write to him, his address is now 32 Woodland Road, Lexington 73, Mass. But write to me first, so the whole class can hear about your latest trials and triumphs.—**Edwin G. Eigel, Jr.**, Secretary, 321 North Thomas St., Arlington 3, Va.

'55

Joy! Thanks to several newsletters and a windfall of newspaper clippings, this promises to be a long column, a fine way to begin the new year. Though we're just now catching up on some of the wed-

dings of last spring and summer, our congratulations are every bit as enthusiastic as if they weren't belated! First to **Bill Kurz**, who in April married Margaret Wales, a native of Abington; a graduate of Thayer Academy, Colby Junior College, and Muskingum College in Ohio; and a former member of the national field staff of the Girl Scouts of America. The Kurzs will continue to live in Palo Alto as Bill is president of the Vacu-Blast Company, Incorporated, in Belmont, Calif. . . . In July with the assistance of **George Ploussios**, who is living in Arlington, **Eric Thompson** was married to Gail O'Brien of Longmeadow, an alumna of the Katherine Gibbs School of Boston. Before reporting to Washington, D. C., where Eric resumed his duties as a first lieutenant at Andrews AFB, the Thompsons honeymooned in Maine and New Hampshire. . . . **Gerry Kliman** married a Wellesley senior, Edith Moses of Rock Island, Ill., in mid-August; and after a trip to Canada both returned to the books in Boston. Gerry is back at Tech after a stint with the Air Force. He is working on his doctorate and working as a teaching and research assistant. . . . In October, **Herman Jacobs** was wed to Carolyn White, a recent graduate of C.W. Post College of Long Island University. After a trip to Nassau, the Bahamas, and Bermuda, they settled in New York City, where Herman is a financial analyst with CBS. . . . Still abroad, apparently, after years and years is **Gordy Cultum**, who planned to take in the Soviet Union this summer!

Another active alumnus, **Dick Dugan**, has been elected secretary of the M.I.T. Club of Framingham. . . . Come to think of it, **Andy Hennesteg** is treasurer of the M.I.T. Club of Puget Sound, also secretary of the Northwest Area, M.I.T., and a member of the M.I.T. Education Council. Last, but hardly least, congratulations to **Astra Zarina Haner**, who, as the first woman to be awarded a Rome Prize Fellowship in Architecture, is spending this year at the American Academy in Rome. After leaving M.I.T., she joined the firm of Minoru Yamasaki in Birmingham, Mich.—Co-secretaries: **Mrs. J. H. Varnarde**, 107 Mullin Road, Wilmington 3, Del.; **L. Dennis Shapiro**, 15 Linnaean Street, Cambridge 38, Mass., ELiot 4-4901.

'56

Just a few short months to the reunion and the activities of the past five years are pouring out.

In September **Herb Burrowes** wed Katherine Lee of Shippan Point, Conn.; **Jerry Veleher** was best man. . . . **Ernest Carlson** has become engaged to Marion Webster of West Roxbury. . . . Our busy reunion co-chairman, **Fred Cullick**, has become engaged to Frederica Mills of Lime Rock, Conn. . . . **Peter Dulchinos** wed Thalia Verros of Lexington in August, and the couple will spend the year in Germany. . . . **Sam Friedman** has become engaged to Maxine Goldfarb

of Brookline. Sam has received his master's from Wharton. . . . **Karl Pearsons** wed Katherine Brigget in November. . . . **Robert Santos** wed Elaine Gagnon of Lynn in September. Robert is with New England Tel and Tel.

A recent note from **Russ** and **Clare Schweickart** says that they became parents of twin boys in September. Russ is back at Tech as a teaching assistant while working for his master's in Astronautics. . . . **Ron** and **Judith Goldner** from out Purdue way announced a boy, Eric Lee, in July with a clever technical brochure. . . . **Ed** and **Norene Boggs** have recently returned to the Boston area from the Air Force. Ed works for Stone and Webster and flies on week ends. . . . **Joseph Carleton** is out of the Navy and working on his master's at Stanford. . . . **Marty Chetron** wed Jane Marcus in 1956, and they have a daughter, Wendy. Marty has attended Cornell Business School and has worked for Victor Chemical Works, Hughes Aircraft and is now with Pacific Semiconductor division of Thompson Ramo Woolridge as a quality control engineer. . . . **Margolia Cohen Gilson** is a visiting lecturer in Chemistry at American International College. . . . **Irwin Gross** has written from Cincinnati where he is a marketing development representative for Formica Corporation. . . . **Ragnar Olsen** is now working on electronics weighing equipment in Sweden. . . . **Andrew Edmonds**, out of the Navy last May, gained some notice for having his 46-foot yacht redone by an interior decorator.

So closes another month at the old listening post with special thanks to **John Coleman** in the Northwest and all those who have written.—**Bruce B. Bredehoff**, Secretary, 1094 Center St., Newton Center 59, Mass.; **M. Philip Bryden**, Assistant Secretary, 3684 McTavish St., Montreal 2, P. Q., Canada.

'57

Sam Appleton was married to Mary Creed of Beverly last May. Sam is associated with the Wayland Lab of Raytheon and previously was a Lt. (jg) in the Navy for three years. . . . June weddings were numerous. On June 4 Kathryn Anderson of Oklahoma City became the bride of **Stanley Scheier**. Stan is an instructor at Tech. . . . On June 16 **John Christian** wed Lynda Gregorian. Lynda is a Wellesley alumna. John is presently in the Air Force and the Christians are living in Frankfurt, Germany. . . . **Gunnar Brondmo** married Susan Graham of West Hartford on June 18. . . . Joan Greenberg and **Jordan Gruzen** were wed on June 27: Jordan studied in Italy under a Fulbright Award and is presently at the Pennsylvania Graduate School of Architecture. . . . June engagements included that of **Bruce Grover** to Carol Ann Cavanaugh and **Darrell Briggs** to Joan Della Puietra. Darrell is an electronic engineer with Schlumberger in Ridgefield, Conn. . . . **Alan McKittrick** and Patricia Taylor were wed last

July. . . . **George Waugh** married Suzanne Wilson, a Simmons graduate. . . . **Joseph Carty** wed Jane Neilan, another Simmons graduate. **Hans Hennecke** was one of their ushers. Joe is a Lt. (jg) attached to NAVSCON at Port Hueneme, Calif., where the Cartys are living. . . . **John McAllister** wed Jane Blount, a Wellesley alumna. . . . **Agustin Reyna** and Sheila Sullivan were married last September. Sheila is a graduate of Emmanuel College and holds an M.A. from the State University of Iowa.

Les Gimpelson has published a paper entitled "Multiple-Rate Sampled-Data Systems," which appeared in the January, 1960 issue of Transactions of the IRE. Les has been made an instructor in the E.E. department. He spent the summer as visiting assistant professor at the University of Miami in Coral Gables after driving down there with **Marshall Schachtman** in June. Marshall is still with Bell Laboratories and is working on a method of increasing the call capacity of the Atlantic telephone cable. **Pierre Cathon** received his master's in Business Administration at Harvard in June and has since been working for Epsco. "Fuel Cells, Power for the Future," a book on the technical and economic aspects of fuel cells, of which Pierre is co-author, has recently been published by Fuel Cells Research Associates in Cambridge. His wife Renata (Egone) is continuing her work for a doctorate in the Biology department.—**Alan M. May**, Secretary, 525 E. 81st Street, New York, N. Y.; **Martin R. Forsberg**, Assistant Secretary, 11 Scottsfield Rd., Allston 34, Mass.

'59

I hope the new year finds everyone in top form. Unfortunately, there has been a lack of mail recently. Hope your New Year's resolutions include writing. I'm expecting a line or two from everyone.

Spoke to **Mike Drew** the other day. Mike is now based in New York with the Air Force. From what I know, he's got a pretty good job with Uncle Sam. . . . Several marriages to report. **Leander Pease** and Barbara Gates were married in Woburn last September. Leander is taking graduate work at Tech. . . . **Gary Plourde** and Johanne Hanifin were married and Gary is now studying at RPI. . . . In Boston, **Gerry Welsh** and Christine Joseph were married and are now living in California. . . . Also wed in Boston were **Joel Parks** and Carol Greenberg. Joel is working at Polaroid as a research physicist. . . . Another September wedding saw Ellen Prowse become Mrs. **David Evans**. . . . In Newton, **Bill Butcher** and Margaret Clark were wed. . . . Vermont saw Joanne Elaine and **Wayne Stuart** married on September 10.

On the scholastic front, **Ed Safran** has been awarded a Gleason Works Foundation fellowship at the Harvard Business School. . . . **Joseph Wojtaszek** is at the University of Rochester working on his Ph.D. in physics. . . . **Herbert** and

David Kline are both in their second year at Brown studying physics.

New York alumni: don't forget the M.I.T. Club at the Biltmore Hotel. For info write to the hotel. Everyone write!! —**Robert A. Muh**, Secretary, 8 Merrivale Road, Great Neck, N. Y.

'60

First of all, I have more weddings to report. I'm being snowed under by the newspaper clippings. **Bob Chute** married Nail Patenaude early this fall. . . . **Harold Parmelee** and Sylvia Higlom were married in September and will live in Hartford, Conn. . . . August 28 was the date of the wedding of **David Kalish** and Ruth Weissman who are now living in Woburn, Mass. Dave is working on his doctorate in physics at B.U. . . . **Jim Madden** and Linda Lizza were married on September 4. They are living in Storrs, Conn., where Jim is studying for a master's degree in civil engineering from the University of Connecticut. . . . **Klaus Berner** married Alice Burke on September 3. Klaus is now at the University of California taking a doctorate in physics. He and his wife are living in Berkeley. . . . The last wedding I have word of is that of **Michael Gross** and Barbara Helfand. They are living in Lynn, Mass., and Mike is working for G.E. in Wakefield as an electrical engineer. . . . I also have two engagements to announce. **Dick Judd** and Barbara Lois, a senior at Tufts, will be married in June. Dick is now taking graduate work at the University of Pennsylvania. . . . **Ken Richardson** and Frances Zea announced plans for a December wedding. So by the time this article gets out they will be married.

I have been sorting through my information cards and find, not to my surprise, that a lot of you are still at Tech. Some of the names I have run across include Bob Gordon, Bob Prause, Craig Sawyer, Ivan Kasser, Alan Brodsky, James Lyon, Bob Hodges, Tony Sacristan, and Harold Hersherberger. Still more, including Ray Waldman, Bill Kleinebecker, Ken Graham, Dick Thompson, Wayne Hayden, Bob Lagace, Jorge Fuchs, Hank Piehler, and Gerry Hurst. Incidentally, **Gerry** spent the summer in Europe with **Steve Shimberg**. I assume they enjoyed themselves. Drop me a line and tell us about it, Gerry. . . . Other information at random; **Nat Florian** is working for Minneapolis Honeywell and was married June 18; **Chad Tolman** is in Berkeley working on a Ph.D. in chemistry on an N.S.F. Fellowship; **Bion Francis** is working for Bridgeport Brass Co.; **Don Weaver** is at Stanford Medical School; **Denis Kelly** is in Poughkeepsie working for IBM; **Tom Stone** is employed by The First National City Bank of New York; **Mark Jensen** is taking a master's in E.E. at Stanford; and **Tony Johnson** didn't know what he was going to do. Can anyone help me out?—**John B. Stevenson**, Secretary, 747 Carnegie Ave., Apt. C-11, Akron 14, Ohio.



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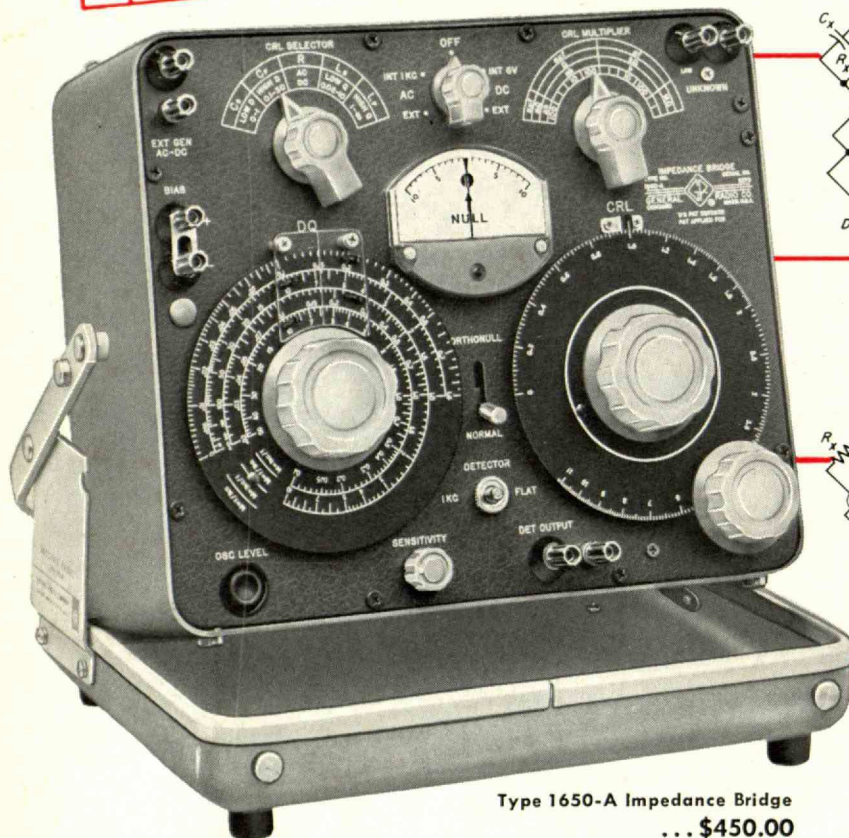
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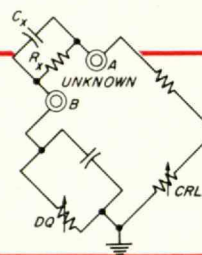
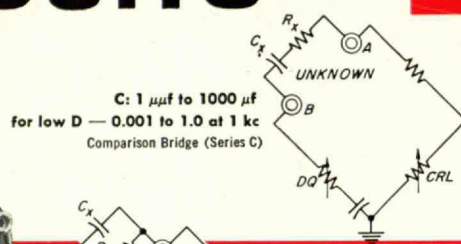


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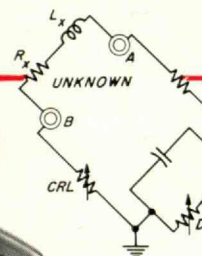
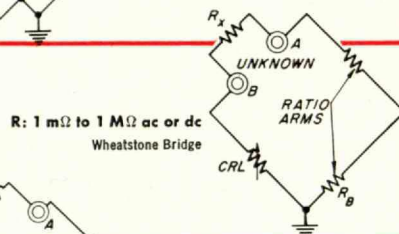
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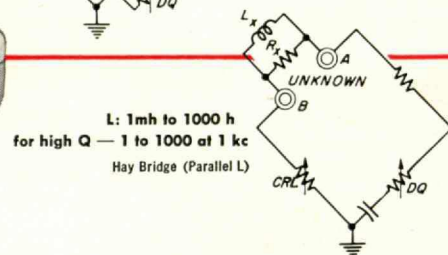
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